- - - Index to Contents, May, 1937 - - -

For Annual Indexes see the last eight pages of December issues

Billboard Regulation
Hingham, a Tradition and a Warning.... 101

Business and Industrial Development
Canton's Civic Achievement Program..... 54
Welwyn Garden City Wins Out..... 57
Greater City Trade Through Better Roads. 61

Business Machines
Speeding Up Municipal Purchasing Routine 47

Cartoons
The Apartment House Problem..... 5
Marooned Motorcycle Cop..... 9

City Manager Plan
Recent City Manager Appointments..... 103

Civic-Commercial Organizations
Canton's Civic Achievement Program..... 54
Regional Cooperation for Traffic Safety... 99
Major Civic Objectives for 1937..... 103

Conferences and Conventions
When and Where..... 121

Finance and Taxation
Speeding Up Municipal Purchasing Routine 47
Letters on Public Housing and Taxes..... 60
How Shall the Trailer be Taxed?..... 81
Electric Plants Furnish Basic Facts..... 89
Exemption of "Government Workers" from Income Tax 109
Modernization of Assessment Procedure.... 109
The Municipal Bond Market..... 111

Fire Prevention and Control
Closed Trucks for Insurance Patrol..... 15
Oakland's New Fire and Salvage Truck.... 129

Floods
Undulant Fever Caused by Floods..... 17
Cities Zoning River Banks Against Floods.. 109

Forward Steps
Items Contributed by Officials and Others.. 97

Government and Administration
Statistics, in 1937 Municipal Year Book.. 5
The First City..... 66
New Home of Public Administration Clearing House 77
The Amended Charter of Memphis..... 101
Exemption of "Government Workers" from Income Tax 109
Voters Demand Increased Services..... 109

Health
Back Your Board of Health..... 17
Food Stores Rated by Score Cards..... 17
Undulant Fever Caused by Floods..... 17
Mosquito Control in Memphis, Tenn..... 17
Food Inspection in Dayton, Ohio..... 17
Last of the Public Drinking Cups..... 17
City Health Contest—Winners Announced.. 81

Housing
The Apartment House Problem..... 5
It Can Happen Here!..... 52
Welwyn Garden City Wins Out..... 57
Letters on Public Housing and Taxes..... 60
European Housing and Planning Tour.... 64
Modern Low-Rent Housing to Replace Insanitary Slum 97

Improving Municipal Administration
Items from Public Administration Clearing House 109

Legal Decisions
The City's Legal Rights and Duties..... 115

Motor Equipment
Department of Sanitation Truck, New York 13
Armored Criminal Catchers 15
Closed Truck for Insurance Patrol..... 15
Motor-Truck Models Completely Changed.. 123
Oakland's New Fire and Salvage Truck... 129

News and Illustrations
Hints for Officials..... 123

Outdoor Lighting
Lighting the City of Beacon..... 133
Floodlighted in Colors..... 134
Lighting Costs in Pennsylvania..... 134

Parking Meters
Parking Meters Popular in Dallas, Texas.. 15

Parks and Recreation
Canton's Civic Achievement Program..... 54
Decatur's Water Works a Show-Place..... 63
New Pools in 750 Cities This Summer.... 65
Wading Pools for Indianapolis Children.... 97
Public Recreation 103

Planning
Site of Former Railroad Yard Becomes Oklahoma City's Civic Center..... 50
It Can Happen Here!..... 52
Welwyn Garden City Wins Out..... 57
European Housing and Planning Tour.... 64
Hingham, a Tradition and a Warning.... 101
River Cities Zoning Banks Against Floods. 109

VOL. LII MAY
No. 5 1937

The American City

Issued Monthly by the
American City Magazine Corporation
470 Fourth Ave., New York
EDGAR J. BUTTENHEIM, Pres. & Mgr.
HAROLD S. BUTTENHEIM, Editor
THEODORE R. KENDALL
Secretary and Engineering Editor
M. V. FULLER, Associate Editor
ALDEN W. WELCH, Research Editor
HERBERT K. SAXE
Treasurer
MYRON MacLEOD, Advertising Mgr.
PRENTICE C. FORD, Asst. to President

•

BRANCH OFFICES
Daily News Building, Chicago
TOM DIX, Vice-President
648 Hanna Building, Cleveland
GEORGE S. CONOVER, Vice-President
Mills Building, San Francisco
DUNCAN A. SCOTT, Representative

•

Subscription, $2 per annum in United States and Canada ($3 to foreign countries)
Single copies, 35c
Back numbers more than 3 months old, 50c
Entered as second-class matter, July 29, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879.
Printed in U. S. A.

•

In THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.

Public Works Administration
Gigantic Storage Created by PWA..... 9
Oklahoma City's Civic Center..... 50

Purchasing
Speeding Up Municipal Purchasing Routine 47

Sewers and Sewage Treatment
Princeton Sewage Works Operating Costs.. 11
Treatment Plant Operation in Topeka.... 11
Sanity in Sanitation..... 11
Sewage-Treatment Plant, San Mateo, Calif. 11
Cities Test Grinding in Refuse Disposal.. 13
A Ravished River Glimpses Glory..... 62
A Sensible Policy for Sewage Works..... 73
Industrial Wastes in City Sewers—I..... 85
Interstate Sanitation Commission..... 93
Expansion Joints of Rubber for Sewage Blowers 125
Protecting Concrete Pipe Used in Sewers. 131

Street Cleaning
Clean-Up Campaign Productive in Norfolk. 13
Where Street Cleaning is Beach Combing.. 13
Street Cleaning in Street Maintenance 67

Streets
Greater City Trade Through Better Roads. 61
Street Cleaning Necessary in Street Maintenance 67
Reconstruction with Brick in Toledo..... 79
Discussion of an Old Asphalt Pavement.... 83
Mechanical Spreader of Large Capacity... 127
New Electric Heater for Asphalt Plants... 129

Swimming and Wading Pools
New Pools in 750 Cities This Summer.... 65
Wading Pools for Indianapolis Children.. 97
All-Steel Swimming Pools..... 125

Traffic
Parking Meters Popular in Dallas, Texas.. 15
Regional Cooperation for Traffic Safety.... 99
"Walk" Signals for Pedestrians..... 105
Dinner of Institute of Traffic Engineers... 107
Portable Traffic Light..... 123

Trailers
How Shall the Trailer be Taxed?..... 81

Transportation
The Future of the Trackless Trolley..... 7

Waste Collection and Disposal
Cities Test Grinding in Refuse Disposal.. 13
City Collection Saves Over Contract..... 13
Clean-Up Campaign in Norfolk, Va..... 13
Department of Sanitation Truck, New York 13
Where Street Cleaning is Beach Combing. 13
Successful Refuse Service..... 56
Industrial Wastes in City Sewers—I..... 85

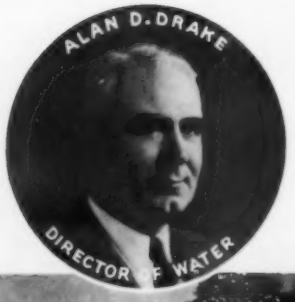
Water Supply and Water Works
Los Angeles Water Consumption..... 9
Injustice of Unmetered Services..... 9
$200,000 Improvements from Water-Works Funds 9
Gigantic Storage Created by PWA..... 9
Marooned Motorcycle Cop..... 9
Decatur's Water Works a Show-Place.... 63
Well-Water System, South Gate, Calif..... 64

See pages 19, 20, 22, 117, 119 for catalogs and publications on municipal and civic subjects

For Index to Advertisements see page 138

See you in BUFFALO..

at the A.W.W.A. CONVENTION



Buffalo, Queen City of the Lakes, extends a hearty greeting and a warm hand of friendship to the members of the American Water Works Association.

A richly historic city, still preserving original sites and relics of its earlier and more turbulent days, Buffalo is a beautiful city, too, proud of its proximity to the great Dominion of Canada and the awe-inspiring grandeur of Niagara Falls.

Buffalo is the second largest railroad center in America and one of the ten largest ports in the world. Its industries are widely diversified, with the largest single hydro-electric development in the United States at its door, grain elevators piercing the skyline, airplane, rayon, rubber factories, and steel mills. And, too, Buffalo may well be proud of its excellent water supply system and its efficient water department which serves this great industrial and domestic population.

PITTSBURGH EQUITABLE METER CO.

MERCO NORDSTROM VALVE CO.

MAIN OFFICES PITTSBURGH, PA.

ATLANTA · BUFFALO · CHICAGO · MEMPHIS
NEW YORK · COLUMBIA · KANSAS CITY · PHILADELPHIA · TULSA · HOUSTON · LOS ANGELES · OAKLAND

PITTSBURGH WATER METERS

Facts, Figures, and Fancy

Statistics from the 1937 Municipal Year Book

THE accompanying tables are reproduced from "The Municipal Year Book, 1937," reviewed briefly on page 117 of this issue. In connection with the tabulation of municipally owned utilities, the Year Book says:

"All cities over 200,000 population report owning one or more utilities, and only four cities from 100,000 to 200,000 report no utilities owned by the city. Of the 935 reporting cities, 187, or 20 per cent, own no utilities, and 152 of these are in the 10,000 to 30,000 population group. The three largest cities which report ownership of street railways are Detroit, New York, and San Francisco. Philadelphia is the only city over 500,000 to own a gas plant. Electric light plants are owned and operated by the following cities with more than 200,000 population: Detroit, Cleveland, Los Angeles, Columbus and Seattle."

FORM OF GOVERNMENT IN 959 AMERICAN CITIES BY POPULATION GROUPS *

Population Group	Total Number of Cities	Mayor-Council		Commission		Council-Manager		Town-Meeting	
		No.	Per Cent	No.	Per Cent	No.	Per Cent	No.	Per Cent
Over 500,000	13	13	100.0	..	..	.	.	.	.
200,000 to 500,000	27*	10	37.0	10	37.0	7	26.0	..	.
100,000 to 200,000	52	30	57.6	11	21.2	11	21.2	..	..
30,000 to 100,000	217	107	49.3	52	23.9	55	25.4	3	1.4
10,000 to 30,000	650	389	59.8	113	17.4	114	17.6	34	5.2
All Cities Over 10,000	959	549	57.2	186	19.4	187	19.5	37	3.9

* Washington, D. C., has been omitted because it is governed by Congress and an appointed commission of three, and thus cannot be classed under any of the common forms of municipal government.

TERMS OF OFFICE FOR 959 CITY COUNCILS ACCORDING TO FORM OF GOVERNMENT *

Council Term of Office	All Cities Over 10,000	No. of Mayor-Council Cities	No. of Commission Cities	No. of Council-Manager Cities	No. of Town Meeting Cities
1 year	27	8	0	1	18
2 years	452	324	47	79	2
3 years	75	26	20	15	14
4 years	387	191	108	87	1
5 years	6	0	5	1	0
6 years	10	1	5	4	0
Not Reporting	2	0	0	0	2
Total	959	550	185	187	37

* Washington, D. C., has been omitted because it is governed by Congress and an appointed commission of three.

OWNERSHIP AND OPERATION OF UTILITIES AS REPORTED BY 935 AMERICAN CITIES

Type of Utilities	All Cities Over 10,000	Over 500,000	200,000 to 500,000	100,000 to 200,000	30,000 to 100,000	10,000 to 30,000
Abattoir	36	1	0	3	14	18
Airport	265	12	23	27	60	143
Electric Distrib.	14	1	0	0	3	10
Electric Light	132	3	2	5	26	96
Gas	31	1	3	3	3	21
Gas Distrib.	4	0	0	0	1	3
Market	108	7	14	12	36	39
Port	60	5	10	13	15	17
Street Railway	14	3	3	2	2	4
Waterworks	664	12	25	42	156	429
No Utilities	187	0	0	4	31	152
Not Reporting	25	0	0	2	7	16

COMPARISON OF CITY-MANAGER APPOINTMENTS, 1931–1936

	1931	1932	1933	1934	1935	1936
Promotions from administrative staff within city	31	30	26	23	24	19
Promotions from administrative positions outside city	13	14	9	8	9	11
Promotions from one city to another	18	8	3	5	6	4
Former managers receiving appointments	11	5	9	16	8	12
Entering from non-governmental positions	22	31	44	29	20	17
Unknown					7	2
Total appointments	95	88	91	81	74	65
Number of out-of-town appointments	39	25	15	26	21	22
Per cent of out-of-town to total	41	28	17	32	28	34

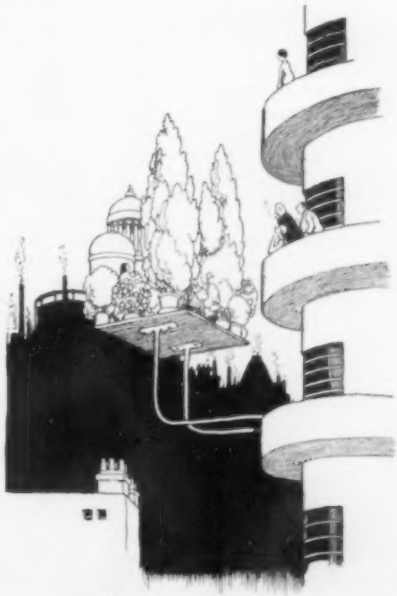
HIKING ON THE ROOF

English Cartoonist Helps Solve Housing Problem

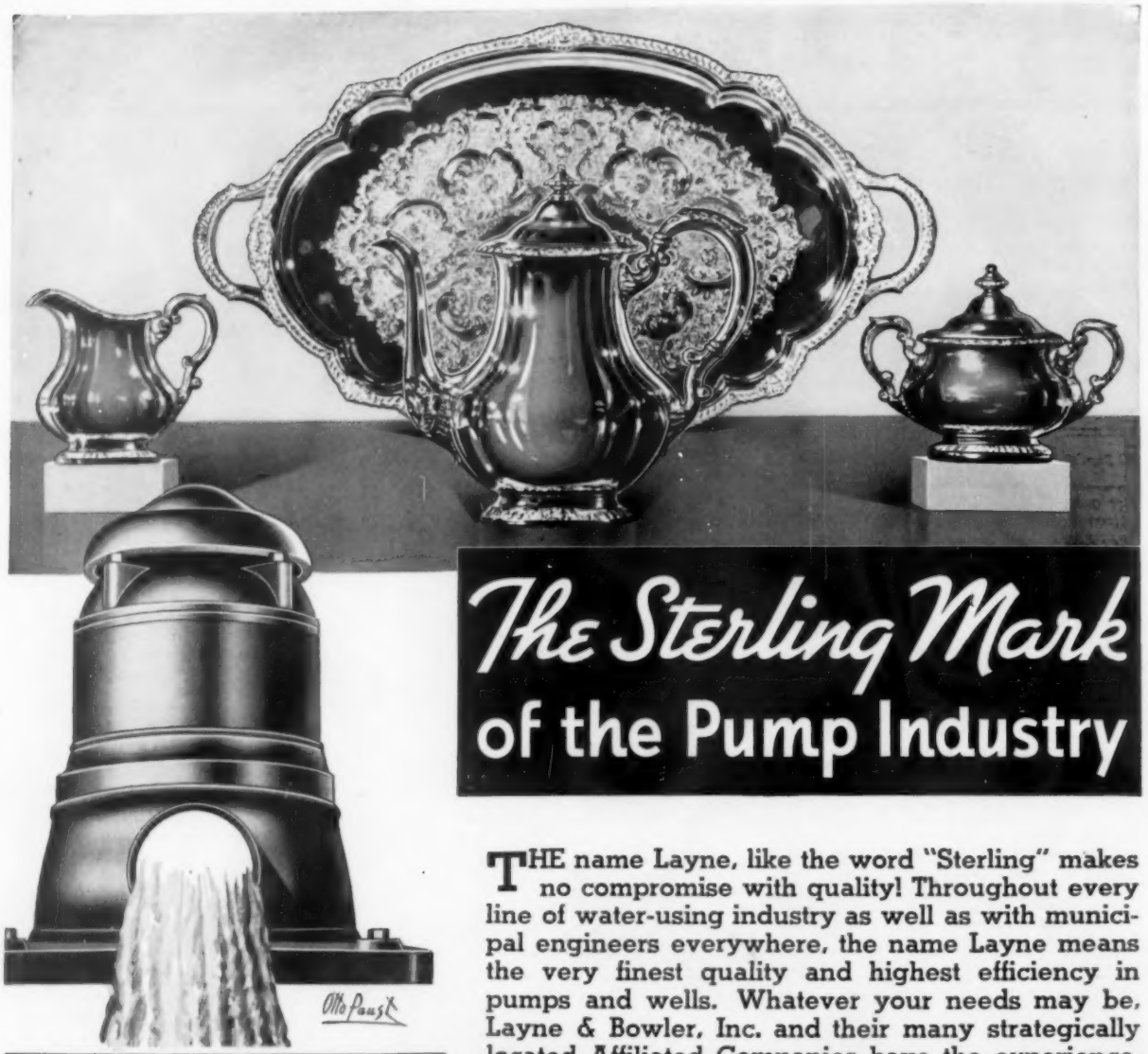
IN a review of "How to Live in a Flat," by W. Heath Robinson and K. R. G. Browne (published by Hutchinson & Co., Ltd., of London), in which these sketches appear, F. J. Osborn writes in *Town and Country Planning* for March, 1937:

"Every architect, every housing expert and every town planner should possess this little book. They need a little brightness in their lives, poor things. Heath Robinson is the comic poet in black and white of this mechanical age. Perhaps he is a symptom of a latent attitude towards modern technique that may ultimately save us. He debunks ingenuity and its everlasting tendency to go crackers. At his best he is near enough to technical plausibility to make a technician first laugh, then look again, then laugh a little more grimly, and then (if he has it in him) wonder whether he is not madder than Heath Robinson.

"After the next war, when the surviving flat-dwellers will seek out and 'bump off' the flat-designers, libraries of learned books will be written to elucidate or entangle further the mystery of the motives of both—as about the similar historic mysteries of witchcraft, the Man in the Iron Mask, and the Trotskyist trials. No satisfactory understanding will ever be reached. . . . Thank Heaven for a spot of conscious insanity in a mad world."



HIDING AN UNSIGHTLY VIEW



The Sterling Mark of the Pump Industry

THE name Layne, like the word "Sterling" makes no compromise with quality! Throughout every line of water-using industry as well as with municipal engineers everywhere, the name Layne means the very finest quality and highest efficiency in pumps and wells. Whatever your needs may be, Layne & Bowler, Inc. and their many strategically located Affiliated Companies have the experience, knowledge, equipment and records of success that qualify them to efficiently solve all water problems. The job is done complete from the original recommendation for the type of well, capacity, operation efficiency, etc. to the final location, drilling and pump installation. Near you there is dependable guidance. No obligation is incurred in calling in a Layne engineer.

Municipal executives may obtain complete information and illustrated literature by writing Layne & Bowler, Inc., Dept. B, Memphis, Tenn.

AFFILIATED COMPANIES

LAYNE-ARKANSAS CO. . STUTTGART, ARK.
LAYNE-ATLANTIC CO. . . . NORFOLK, VA.
LAYNE-CENTRAL CO. . . . MEMPHIS, TENN.
LAYNE-NORTHERN CO., MISHAWAKA, IND.
LAYNE-LOUISIANA CO., LAKE CHARLES, LA.
LAYNE-NEW YORK CO. . . NEW YORK CITY.
LAYNE-NORTHWEST CO., MILWAUKEE, WIS.
LAYNE-OHIO CO. . . . . COLUMBUS, OHIO
LAYNE-TEXAS CO. . . . . HOUSTON, TEXAS.
LAYNE-WESTERN CO. . KANSAS CITY, MO. CHICAGO, ILL., AND MINNEAPOLIS, MINN.
LAYNE-BOWLER NEW ENGLAND COMPANY, BOSTON . . . . . MASSACHUSETTS.
INTERNATIONAL WATER SUPPLY, LTD., FORT ERIE, N. . . . . ONTARIO, CANADA.

LAYNE PUMPS
LAYNE WELL WATER SYSTEMS

The Local Transit Problem

The Future of the Trackless Trolley

TO the city official the advantages of a public vehicle are measured by service to the public.

The advantage or disadvantage of the trackless trolley or trolley coach must be regarded as residing wholly in the advantage or the disadvantage of electric drive.

Here is a city which proposes to modernize. It soon finds its forces torn between a powerful push to replace the existing systems by an all-bus system, and an emotion that the middle ground of modernized trolleys and trackless trolleys as well as modern gasoline buses may be the wiser course.

This is especially the case when it is borne in mind that a number of cities in the last year have purchased 635 vastly improved trolley cars. These cities are Baltimore, Brooklyn, Chicago, Los Angeles, San Diego, Pittsburgh, and Washington, and a number of them are planning to install more of these modernized street cars. "Improved street cars" are the first transit need stated by James L. Martin, Executive Secretary, Public Utilities Commission of the District of Columbia.

One way to attain modernization is to change suddenly to buses, as was done in Manhattan. But there was no other course of action available there. The trolley cars were worn out. The alternative was modernized street cars or gasoline buses. The fact that Manhattan's trolleys were fed by underground conductors precluded any consideration of the trackless trolley. Even now in Manhattan there are street cars: 567 of them operated by the Third Avenue Railway alone. Across the river in the borough of Brooklyn, there are 1,032 trolley cars in operation, of which 100 are the well-known modern P.C.C. cars.

What are the values of the trackless trolley?

In the first place, where the gasoline motor-bus starts with the 21-passenger size which depends on the fast, frequent operation of many small vehicles, as at Detroit, the trackless trolley is usually of 40-passenger size, more roomy, more expensive, and well appointed.

Having the entire central station behind it, there is unlimited electricity for lighting and heating the vehicle. The lighting therefore can be of the best, and electric heat is the cleanest heat.

With the trackless trolley there is no exhaust odor or noise.

TROLLEY COACH IN CINCINNATI

The trackless trolley is the quietest vehicle on the streets today. It starts and picks up speed rapidly and provides smooth operation at all times.

The people like them, as evidenced by increased revenues when trolley coaches are installed. Greenville, S. C., will install them soon, and Milwaukee will add 44 to the 30 units already operating. In addition to the 1,184 trolley coaches in the United States, there are in Newark, N. J., 357 All-Service vehicles which a push-button converts from a trackless trolley into a self-powered gasoline-electric-driven coach.

Against these decided advantages of comfort is the trend of the times. The financial jam in which the transit companies have been for years is breaking up; trolley lines are being sold to new people, and the trolleys are likely to be replaced by gasoline buses. The new operators think in terms of automotive operation, and will operate electric-driven vehicles only on the insistence of the city councils and the public. In 230 cities the local transportation systems are now owned and operated by companies independent of either transit or power interests. The older companies that remain in the transportation business are under continual pressure to abandon electric drive and go all-bus—as is the present form in 434 of the 982 cities of 10,000 or more population. Only 62 cities now operate trolley cars, 12 fewer than a year ago. But where 2,277 trolley cars were scrapped in 1936 and 2,276 gasoline buses were added, there were also added 545 trackless trolleys in 14 American cities.

Changes are brewing in many other cities.

Transportation Needs Reported by City Officials

City Engineer J. E. McCook of Little Rock, Ark., calls for "elimination of surface street cars (old type) and replacement with trackless trolleys or buses providing faster schedules."

Secretary H. S. Payne of the Los Angeles Board of Public Utilities and Transportation says: "The most urgent need is the replacement of existing antiquated equipment."

William T. Hay, Executive Secretary to Mayor David L. Dunn of New Britain, Conn., asks for a complete study of traffic conditions to relieve congestion, and a revamping of travel routes."

Mayor John W. Murphy of New Haven wants "rerouting of trolley cars away from immediate center of city as an aid to improving traffic conditions."

C. D. Krausser, President, Board of Trustees, Maywood, Ill., asks "change from antiquated street-car systems to a modern bus system with adequate feeder lines."

Mayor Joseph Waltermann of Richmond wants "bus service to replace electric street cars."

A. R. Altman, Secretary to Mayor Lionel Evans of Youngstown, Ohio, asks "replacement of our gasoline buses by more modern equipment."

Clerk of the Council Joseph C. Barbot of Charleston, S. C., states that "there has been a suggestion for the removal of the cars from the main shopping street on account of its narrowness. Recently there has been a suggestion for the substitution of buses for the electric cars."

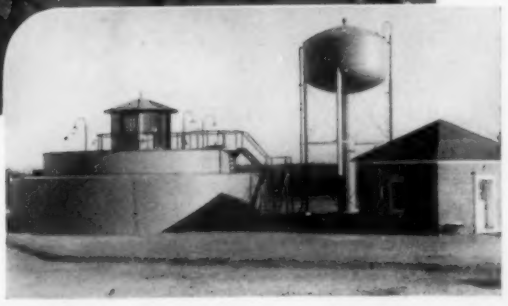
City Manager R. W. B. Hart of Lynchburg, Va., stresses the need for a study of changes from cars to buses *in part*.

Mayor Daniel W. Hoan of Milwaukee says that "where a street is to be widened or completely repaved there should be a gradual elimination of street-car tracks, with substitution of modern gasoline or electric buses, with adequate service."

These and numerous other cities could use trackless trolleys. Because of the obvious comfort features of these electric vehicles, they must be compared only with the finest modern gasoline buses. The presence of trolley coaches in a city should tend to maintain a good standard of motor-bus service in that city, as the contrast between trackless trolleys and old, hard, jolty buses is too jarring to be accepted by a public adequately instructed.

Many municipal administrations now have an opportunity to endow their cities with modern transportation systems by (1) informing themselves on the modern vehicles that are available, (2) understanding the ability of local companies to provide the vehicles most applicable, (3) working with the company and the business and civic organizations to help make correct modernization possible and a success to all parties.

THE MORSE ALL-STEEL FILTER PLANT



Modern!

The advantages offered by the Morse *All-Steel* Filter Plant are typically those of modern design . . . modern materials . . . and modern application. The installation pictured here is a unit recently placed in operation at Lorton, Va., to serve the District of Columbia Penal Institutions located there. Although occupying an area only 50 ft. in diameter, the filter plant has a capacity of 1,250,000 g.p.d.

As compared with other forms of construction, Morse Filter Plant units range 30 to 40 percent lower in first cost with all things being equal. The all-steel design offers the same advantages that have proved so desirable in large-capacity water storage tanks—no seepage, no cracking, and less maintenance expense.

In operating efficiency, the Morse Filter Plant also offers distinct advantages. Very small loss of head through the plant results in lower pumping costs. Variations in operating rate are readily accommodated. Control is centralized to make supervision simple and easy. Cleaning and maintenance is easier and quicker.

Ask for quotations on units for any filtration projects you may be contemplating at present. No obligation. Address our nearest office. Descriptive folder on request.

CHICAGO BRIDGE & IRON COMPANY

Chicago	2127 Old Colony Bldg.	Philadelphia	1616 "1700" Walnut St. Bldg.	San Francisco	1033 Rialto Bldg.
New York	3308-165 Broadway Bldg.	Boston	1501 Consolidated Gas Bldg.	Houston	2919 Main Street
Cleveland	2236 Rockefeller Bldg.	Birmingham	1502 N. Fiftieth Street	Tulsa	1625 Hunt Bldg.
Detroit	1501 Lafayette Bldg.	Dallas	1406 Liberty Bank Bldg.	Los Angeles	1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

During May we hope you will remember to mention THE AMERICAN CITY.

Water Supply and Purification

THE average daily consumption of water in Los Angeles, Calif., in 1936 was 232 million gallons, equivalent to a flow of 360 second-feet, according to the Official Bulletin of the Department of Water and Power.

Courtesy of Collier's and Jay Irving

MAROONED MOTORCYCLE COP: "LOOK, EDDIE, PLEASE STOP LAUGHING AND PHONE THE WATER DEPARTMENT LIKE A GOOD FELLA!"

The Injustice of Unmetered Water Services

IN "COMMERCE," published by The Chicago Association of Commerce, Loran D. Gayton, Acting City Engineer of Chicago, presents an article, "Water—a City's Biggest Business." In the discussion of the injustice of unmetered supplies, Mr. Gayton brings out some interesting figures based on the situation in Chicago.

At the end of 1935, there were, in Chicago, 413,189 water services, 111,773 of which were metered, and 301,416 without meters. In other words, approximately 27 per cent were metered and 73 per cent were unmetered.

During 1935, the Chicago water-supply system delivered within the city limits 346,327,508,425 gallons of water. The average daily pumpage was 948,842,489 gallons, giving a daily average of 2,296 gallons per service, and 249 gallons daily per inhabitant. Of this total pumpage for the year 1935, 36 per cent passed through metered services, and 64 per cent passed through unmetered services.

The total income to the water fund from the sale of water in 1935 was $12,925,010, and 73 per cent of this total, or $9,498,053, was paid by metered users, and 27 per cent, or $3,426,957, was paid by unmetered users. In other words, although the metered users used only 36 per cent of the water pumped, they paid 73 per cent of the income received from the sale of water.

The large consumers, such as the Stock Yards and packing industries, railroad yards, large office buildings, laundries, hotels, canning and bottling plants, and cities and towns outside the limits of the city, receive water through meters from 3 to 12 inches in size. At the end of 1935 there were 2,459 of these meters in use. These large consumers took 18 per cent of the total pumpage and paid 38 per cent of the total revenue derived from the sale of water.

$200,000 *Improvements from Water-Works Funds*

IMPROVEMENTS totaling $206,505.49, paid for entirely out of current water-works revenue, were made during 1936 by the Clarksburg, W. Va., water works. This represents the greatest number of improvements instituted by the Board in any one year of its history; the list includes:

Laid 11,617 linear feet of high-pressure water main, including fittings, in anticipation of future branches, valves, fire hydrants, valve-boxes, valve-pits and covers, lead service lines, meter wells and lids, and extra-heavy centrifugally cast iron pipe from 8 to 12-inch diameter, at a cost of $66,086.94.

Laid 24-inch force main in South Chestnut Street, at cost of $17,529.02.

West Milford dam improvements, $4,279.68.

Filter plant improvements, $2,710.72.

Air compressor, $2,053.35.

Cyclone fence, $1,813.00.

New pumping units with capacity of 4,000,000 gallons daily, $23,464.97.

Rights-of-way for pipe lines, $1,607.86.

Amount paid into sinking fund and interest and bond retirements, $16,000.

Awarded contract for three 500,000-gallon storage tanks at cost of $44,647.50.

Awarded contract for large pipe lines to tanks, $26,322.50.

During 1937 the Water Board will continue its five-year program of improvements to the water plant and system announced in 1935.

SCOTLAND G. HIGHLAND,
General Manager.

Gigantic Storage Created by PWA

THE greatest program in the history of the world for the impounding of water is being carried out in the United States through the PWA. All the water held at one time in dams or reservoirs completed or under construction with PWA assistance would:

Cover the state of Pennsylvania with 2 feet of water, with enough left over for a few good-sized lakes; or

Supply New York City for 62 years with sufficient water for its requirements for washing, drinking and industrial use; or

Reduce the world's ocean level ¼-inch; or

Flood the state of Delaware with 44 feet of water, 14 feet deeper than the most recent Johnstown flood; or

Float 1,078,431 vessels the size of the British ship Queen Mary.

That is five ways of saying it, but, getting down to one figure, it may be said that the United States now has completed or under way PWA projects which will impound 22,000,000,000,000 gallons of water in places where they best serve the country through use for irrigation, power, navigation, flood control, domestic and industrial purposes.

PERFORMANCE *Counts*

PONCA CITY GETS ITS FIFTH ENGINE

★ In 1923, Ponca City, Oklahoma, purchased its first Nordberg Diesel engine, a 1250 horsepower, two cycle, air injection unit. Two years later, a second engine was installed and then two more in 1927, all duplicates of the original installation.

Because of these many years of reliable and economical service, Ponca City again turned to Nordberg Diesels when additional capacity was required. To the present 5000 horsepower municipal plant capacity is to be added a fifth and larger Nordberg unit, this being a 2250 horsepower, six cylinder, air injection, two cycle engine. With 7250 total installed horsepower, this plant will rank among the larger Diesel-engined municipal power plants in this country.

The new unit will operate on 8° to 12° Baume' oil, the same fuel that the older engines have been operating on for many years. This is just one more instance where Nordberg Diesels have given years of profitable operation on heavy low grade fuel and with very low maintenance cost.

When considering a new power plant or additional capacity, or where low grade fuel oil is available, Nordberg can recommend an engine best suited for the service required.

★ Nordberg Diesel engines are available for every power requirement in two and four cycle types, and in a wide range of sizes.

NORDBERG MFG. CO., Milwaukee, Wis.

NEW YORK 60 E. 42nd St. | WASHINGTON Barr Bldg. | CLEVELAND Rockefeller Bldg. | KANSAS CITY 3560 Broadway | DALLAS 3801 Potomac Ave. | LOS ANGELES Subway Term. Bldg.

Do you mention THE AMERICAN CITY? Please do.

Sewage Treatment--Sanity in Sanitation

Operating Costs at Princeton Sewage Works

THE Princeton, N. J., sewage plant has been in operation 24 hours a day without interruption since it was first placed in service in October, 1932. In all this time the bypass valve has not been opened once. Inasmuch as a major water supply is taken from the river below the plant and there is considerable bathing in the stream in summer, a very close check is kept upon the plant, not only by the borough officials but also by a water company which uses the Millstone River as its source of water supply. The water company's analyses of river samples check closely with the plant analyses and show that the sewage effluent has no effect on the bacterial content of the river water. During the summer when there is bathing in the river just below the plant outfall, an excess of chlorine gas is added to the effluent, so that it is far superior to the river water as far as the bacterial content is concerned.

The methods of treatment at the Princeton plant have been improved in the past five years, and the operation costs have decreased considerably from the original estimate. Higher maintenance costs may be expected as the plant becomes older, but the reduction in the capital cost will far exceed the increase in maintenance. In order to keep down the maintenance costs of the sewage-treatment plant, particularly in the mechanical equipment, very careful supervision is necessary, and a replacement or depreciation fund is planned.

Pumping costs continue to be the largest single item in operating costs, nearly one-third of the total. The operating force of the plant has been reduced to a minimum, but there is always an operator at the plant, including Sundays. The chief operator lives on the premises and has an alarm in his house connected with the station, so that he is warned in case of a power failure or a breakdown in a pump. A nightly inspection of all mechanical apparatus is made as an extra precaution.

All iron work about the plant received at least one coat of paint in 1936, concrete where necessary was reconditioned, and the glass-covered sludge beds received two coats of aluminum paint.

—From the 1936 Annual Report of I. RUSSELL RIKER, Engineer, Borough of Princeton, N. J. For a full description of the Princeton sewage-treatment plant, see THE AMERICAN CITY, October, 1932, pp. 67-70.

Treatment Plant Operation in Topeka, Kansas

THE Engineering Department of Topeka, Kans., in 1936 designed and supervised the construction of six sanitary sewers and two storm sewers. The sewage system consists of six pumping plants and two treatment plants. The plants serve 173.65 miles of sanitary sewers flowing into the main intercepting sewer three miles in length, lying along the lower levels of the city and connected to these plants. The present system serves approximately 70 per cent of the city and has a capacity for treating 5 million gallons of sewage daily.

The major plant improvement was started in 1935 and has only recently been completed. This consists of secondary treatment by which the effluent from the previous primary treatment, consisting of clarifier and sludge digestion tanks, will be introduced into an activated sludge system, where the gas obtained from sludge digestion will be used as fuel for gas engines operating air blowers in connection with the aeration tanks for activated sludge operation.

A major sewage-treatment problem in Topeka is the handling of large quantities of packing-house sewage from institutions which are actively in business but not equipped with modern treatment facilities. This throws a load of solids for disposal on the Topeka plant far above that which is frequently experienced by a city of this size.

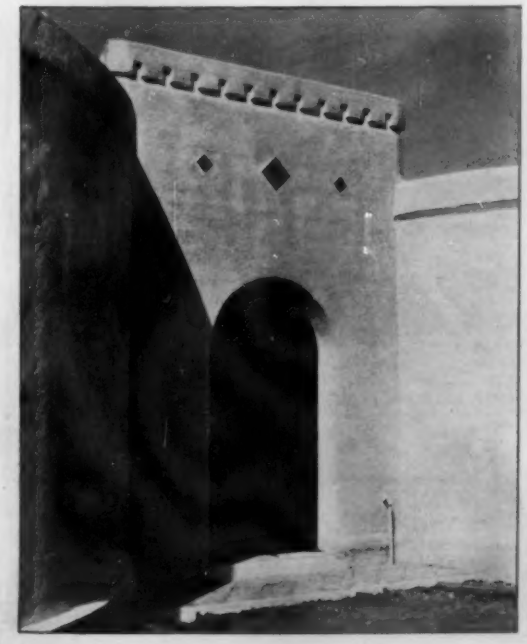
The cost of operation of a treatment system of the size now in existence in Topeka will require additional funds which should be raised through sewer-rental charges including a surcharge for sewage of unusual strength.

Sanity in Sanitation

EIGHTY municipalities representing one-half of the total population of New Jersey have consolidated their sanitation services of sewage treatment by using 19 plants. These 80 municipalities represent three-quarters of the population of the state served by sewage-treatment plants. According to the Princeton Local Government Survey, this makes New Jersey first among all the states in proportion of population served by sewer systems, and close to the top in consolidated sewer services.

PER CENT OF POPULATION PARTICIPATING IN CONSOLIDATED SANITATION SERVICES

County	Per Cent
Essex	97
Mercer	92
Union	90
Passaic	86
Camden	65
Bergen	38
Middlesex	32
Morris	29
Somerset	15
Hudson	8½
Atlantic	7½
Monmouth	5



A modernistic touch at the new sewage-treatment plant at San Mateo, Calif., built with the aid of a $45,000 PWA allotment. It replaces two inadequate plants and will aid in protecting the waters of San Francisco Bay

PROVED BEST BY 11-POINT TEST

Visible at 3 Times the Usual Distance

WHEN called upon to solve your city's traffic control problem, *solve it successfully* with MARK-TIME. Know the *facts* which prove MARK-TIME the best Parking Meters ever installed.

The clock-like dial, exclusive with MARK-TIME, is easy to read and visible for 3 times usual distance. As easily seen from the sidewalk as from the street. Makes the traffic officer's work efficient and easy. Counts off the minutes—unused portions of legal parking time may be properly used by others for short stops and quick errands.

MARK-TIME exclusive dial shows overtime parking in minutes as well—no arguments or resentment with the traffic officer. Play safe and insist on MARK-TIME Parking Meters in your city.

Write for free 20 page book which tells why MARK-TIME Parking Meters will be successful and popular in your city. See the MARK-TIME 16 page section in new MUNICIPAL INDEX.

M. H. RHODES, Inc. • ROCKEFELLER CENTER, NEW YORK

CHICAGO • DETROIT • CLEVELAND • BOSTON • ATLANTA • BALTIMORE • PHILADELPHIA • ST. LOUIS • WICHITA
NEW ORLEANS • DALLAS • MINNEAPOLIS • SEATTLE • SAN FRANCISCO • LOS ANGELES • CINCINNATI • PITTSBURGH • DENVER

MARK-TIME Parking Meters
"Proved Best By 11-point Test"

1. The dial is easy to read . . . easy to understand . . . visible at 3 times usual distance.
2. Smart, beautiful appearance.
3. Strongest construction.
4. Simplest mechanism . . . only 3 moving parts, instead of 60.
5. Operates in all kinds of weather.
6. Requires no winding nor servicing.
7. Theft-proof, like telephone coin boxes.
8. Dial can be easily adjusted to fit new zoning laws.
9. Made "from the ground up" by its sponsor.
10. Made by specialists in time-control devices.
11. Holds a record of successful use in other cities.

DISTRIBUTORS: A few territories open

MARK-TIME PARKING METER

Refuse Disposal — Clean-Up Campaign

WHERE STREET CLEANING IS BEACH COMBING

At Miami Beach, Fla., the delightful beach is a thoroughfare and front yard combined. To maintain the sandy stretch in a sightly condition, a Caterpillar Twenty-Two pulls six carts two miles over the beach collecting débris, wreckage and seaweed. Four round trips are made each day

Cities Test Grinding in Refuse Disposal

CITIES are increasingly experimenting with a knotty and costly problem, refuse disposal, the solution of which is so important to the sanitation and sightliness of a city. Municipal engineers are watching with particular interest the innovation of garbage grinding, whereby refuse is ground and disposed of along with the sewage.

There are several methods of refuse disposal—incineration, dumping at sea, filling of waste land, reduction which recovers the grease content, and feeding to swine. Several cities, among them Baltimore and St. Louis, have inaugurated the grinding method, which has a chance of wide adoption as soon as the many problems involving the sewage-treatment processes can be overcome.

Refuse grinding is accomplished in three ways: by a small grinder installed in the home beneath the kitchen sink; by central grinding stations located over trunk sewers; or by grinding at the sewage-treatment plant. It is reported that the sewerage systems of cities where the plan is already in practice have thus far suffered no special harm.

Baltimore, Md., was the first large city to install a garbage-grinding station, building a plant in 1933 to relieve the municipal incinerators during the summer peak loads. The first municipal garbage-grinding plant for the disposal of all garbage collected by city forces was built by St. Louis, Mo., in 1934. Ground garbage from both these cities is discharged into the sewers. Indianapolis set up a temporary grinding plant at the grit chambers of its sewage-treatment plant in 1935, when its garbage reduction plant was put out of service for seven months. Other cities are reported as considering the provision for the incineration of ground garbage along with sludge from the sewage-treatment process.

St. Louis' garbage-grinding plant has been in operation daily for about fifteen months. Designed and built by city forces, it cost $40,000, exclusive of land, overhead and contractors' profit. During the fiscal year 1935-36 nearly 41,000 tons of garbage was collected and ground at a cost, including maintenance, water, power and labor, of 41.3 cents per ton. Previously the city had been paying about $25,000 per year to hog farms for barging the garbage down the Mississippi River. Savings under the grinding system are reported as more than offsetting the cost of the first grinding plant. A second plant has been recommended to care for expected increased collections.

—From a survey by the American Public Works Association.

City-Refuse Collection Saves Over Contract

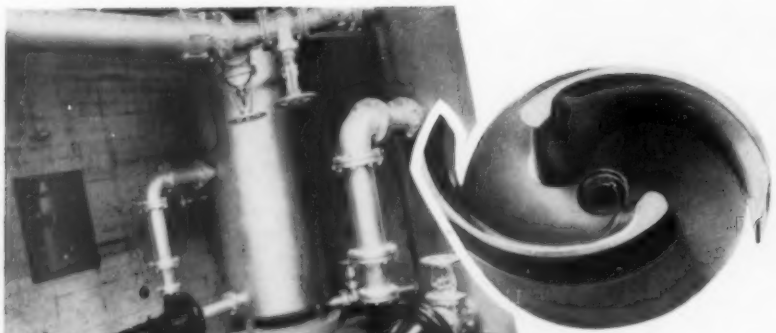
IN calling attention to the fact that Cohoes, N. Y., will have met all outstanding obligations, excepting bonded indebtedness, by the end of 1937, Mayor Frank S. Ablett pointed out that $4,000 has been saved annually by having the collection of garbage and ashes done by the Department of Public Works instead of by contract.

—*The Street Cleaner.*

Clean-Up Campaign Productive in Norfolk, Va.

DURING a period of five weeks, a clean-up campaign in Norfolk, Va., resulted in the removal of 334½ loads of débris from vacant lots in the city, according to a statement of T. P. Thompson, City Manager, in *The Street Cleaner*. W. H. Taylor, Director of Public Works, and City Attorney Sebrell are collaborating in a codification of street-cleaning and refuse-collection regulations, preparatory to a general revision.

IN A SWEEPING PROGRAM OF MODERNIZATION, THE DEPARTMENT OF SANITATION, NEW YORK CITY, PURCHASED 100 OF THESE HEAVY-DUTY MODEL 818 CAB-OVER-ENGINE TRUCKS WITH 121-INCH WHEELBASES MANUFACTURED BY THE WHITE MOTOR COMPANY, AND EQUIPPED WITH REFUSE BODIES OF SPECIAL DESIGN



PUMP BUILDERS SINCE 1864

Non-Clogging

VICTOR Kimball-Krogh Pumps

Engineering Excellence

VICTOR-KIMBALL-KROGH "Non-Clogging" Sewage Pumps, either vertical or horizontal, embody the ideal features demanded by the modern sewage engineer. Impellers are of "two vane," semi-open type, WITHOUT wearing rings. They are exceedingly sturdily constructed and, even though high pumping efficiencies are not ordinarily of primary importance, offer also this added advantage. Over 70 years of pump building indicates the reliability and vast experience of the VICTOR-KIMBALL-KROGH organization.

VICTOR EQUIPMENT COMPANY

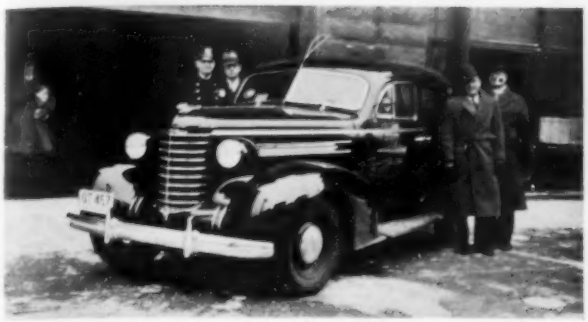
KIMBALL-KROGH PUMP DIVISION

515 Harrison Street
SAN FRANCISCO

1010 East 62nd Street
LOS ANGELES

Bulletin No. 601 offers full description and blue-prints—Yours, free for the asking.

Public Safety



ARMORED CRIMINAL-CATCHERS OF SANDUSKY, MICH.

"To combat modern crime, our equipment should be better than that used by the present-day criminal," says C. A. Weingates, Chief of Police of Sandusky, Mich. "The armored Oldsmobile and Studebaker shown here are equipped with radio, machine guns and gas, and we intend in the near future to add two-way radio communication." The gentlemen in overcoats are A. J. Lauber, City Manager, and Chief Weingates

Closed Truck for Insurance Patrol

THE trend toward closed trucks for fire service, as illustrated by enclosed pumpers in Charlotte, Topeka and Detroit, many new squad cars, and the fact that New York City equips its new pumping engines and hose trucks with cab and in the case of the hose trucks with rear windshield instead of front windshield only, is also exemplified by a new closed truck recently placed in service by the Chicago Fire Insurance Patrol, in place of the familiar open type in general use.

"This new construction," says Frank C. McAuliff, Chief of Patrols, "permits space in which it is possible to carry first-aid and stretcher equipment in addition to the regular salvage covers and appliances. Because of the open-type apparatus responding to alarms and the lack of adequate ambulance facilities at fires, it is believed that closed-body construction of pumpers, hose wagons, and more particularly squads and patrols, will answer a dual purpose if properly equipped."

The Chicago Fire Insurance Patrol is operated by the Chicago Board of Underwriters, and under a state law it operates at fires under the jurisdiction of the Chief Fire Marshal, M. J. Corrigan. Chief Marshal Corrigan states that Arntzen auxiliary stretcher equipment is used in the ambulances of the Chicago Fire Department, and also in the ambulances operated by Cook County.

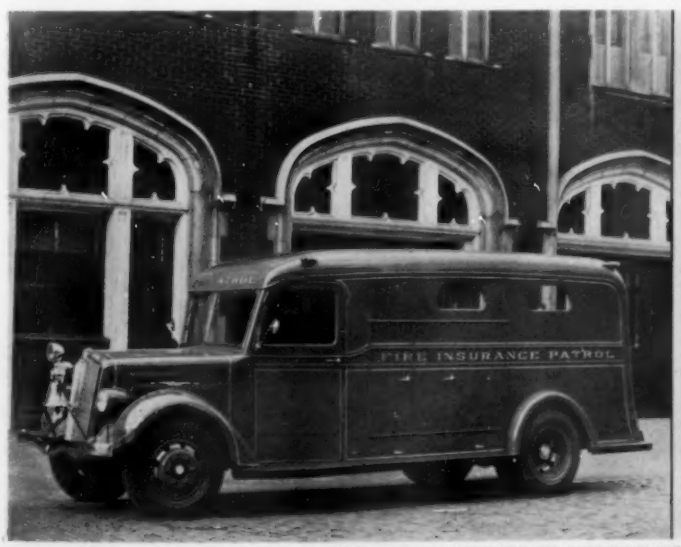
Parking Meters Popular in Dallas, Texas

DALLAS is one of the first large cities to use them for a sufficient length of time to arrive at a decision as to whether they are a benefit or a detriment to motorists. I think if you could take a poll of individual motorists in Dallas, or any other city where meters have been installed on a fair and impartial basis, that the motorists, themselves would unquestionably vote "yes" for their installation and use.

In Dallas they have provided for an increase in parked-car turnover of 300 per cent. Their use has resulted in the speeding up of traffic on the downtown streets, relieved congestion and made for easy parking; especially is this latter statement true with respect to women drivers. The motorists, merchants, fleet operators, city officials and citizenship as a whole are entirely pleased with parking meters, and believe that they are a decided improvement in parking control.

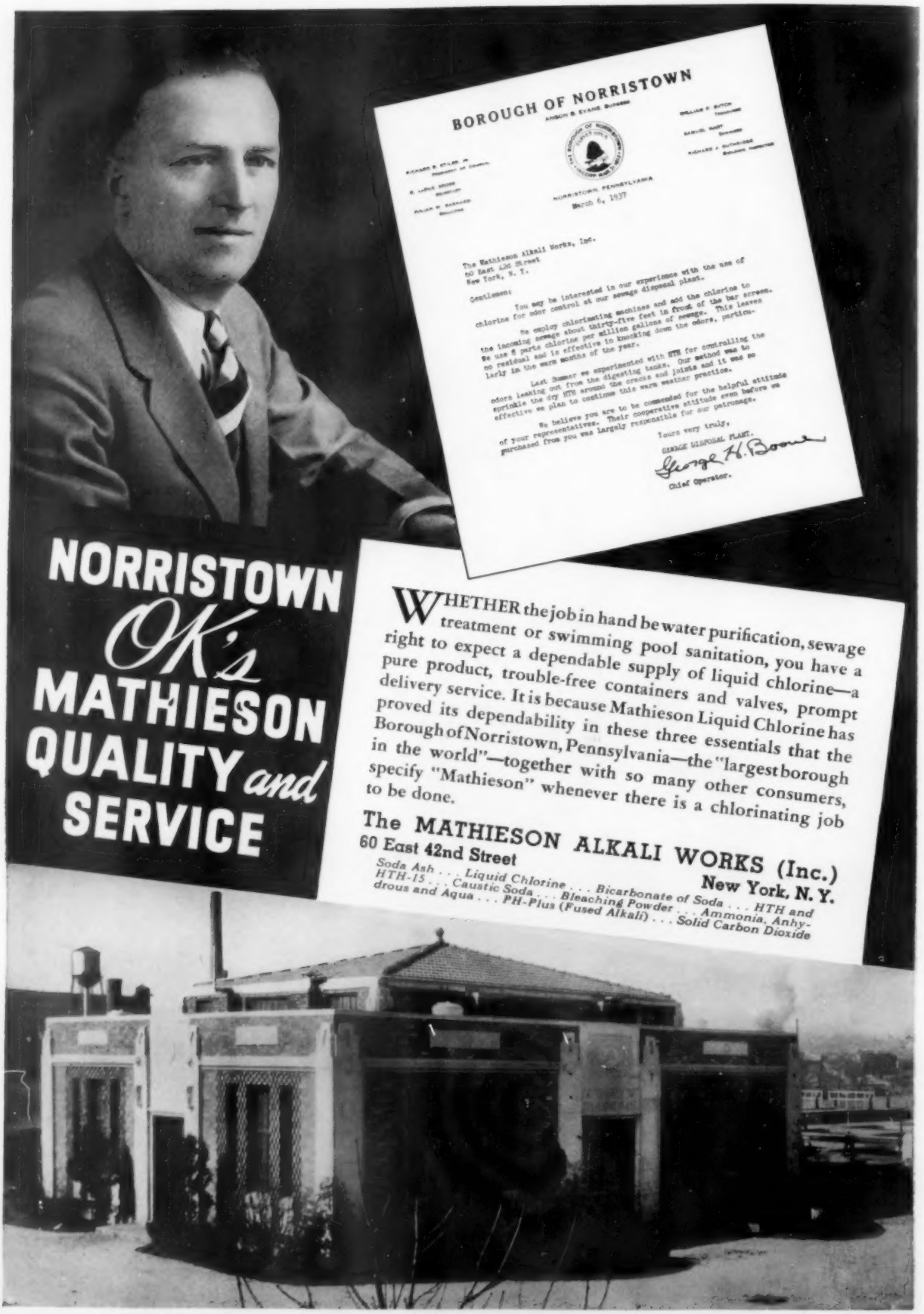
The Citizens Traffic Commission of Dallas, an officially appointed body of the city government, has requested that I transmit this letter to you.

C. J. RUTLAND,
Chairman, Citizens Traffic Commission, Dallas, Texas. From a letter to the American Automobile Association.



CLOSED SALVAGE TRUCK BUILT BY WHITE MOTOR COMPANY

Equipped with an Arntzen full-length stretcher made of nickel-plated steel tubing on an aluminum-cast runway, with a mattress that folds with the stretcher and is fastened against slipping


BOROUGH OF NORRISTOWN
NORRISTOWN, PENNSYLVANIA
March 6, 1937
The Mathieson Alkali Works, Inc.
60 East 42d Street
New York, N. Y.
Gentlemen:
You may be interested in our experience with the use of chlorine for odor control at our sewage disposal plant.
We employ chlorinating machines and add the chlorine to the incoming sewage about thirty-five feet in front of the bar screen. We use 6 parts chlorine per million gallons of sewage. This leaves no residual and is effective in knocking down the odors, particularly in the warm months of the year.
Last Summer we experimented with HTH for controlling the odors leaking out from the digesting tanks. Our method was to sprinkle the dry HTH around the cracks and joints and it was so effective we plan to continue this warm weather practice.
We believe you are to be commended for the helpful attitude of your representatives. Their cooperative attitude even before we purchased from you was largely responsible for our patronage.
Yours very truly,
SEWAGE DISPOSAL PLANT.
George H. Boone
Chief Operator.
NORRISTOWN OK's MATHIESON QUALITY and SERVICE
WHETHER the job in hand be water purification, sewage treatment or swimming pool sanitation, you have a right to expect a dependable supply of liquid chlorine—a pure product, trouble-free containers and valves, prompt delivery service. It is because Mathieson Liquid Chlorine has proved its dependability in these three essentials that the Borough of Norristown, Pennsylvania—the "largest borough in the world"—together with so many other consumers, specify "Mathieson" whenever there is a chlorinating job to be done.
The MATHIESON ALKALI WORKS (Inc.)
60 East 42nd Street
New York, N. Y.
Soda Ash . . . Liquid Chlorine . . . Bicarbonate of Soda . . . HTH and HTH-15 . . . Caustic Soda . . . Bleaching Powder . . . Ammonia, Anhydrous and Aqua . . . PH-Plus (Fused Alkali) . . . Solid Carbon Dioxide

Health and Sanitation

Back Your Board of Health

EMPEDOCLES delivered the people of Selinus from a pestilence by draining a marsh, and was hailed as a demigod, and it is said that a coin was struck in his honor.

Your Board of Health should be backed in its program to eliminate disease so far as possible from your community. The Board and the Health Officer may not have medals struck in their honor, but they are deserving of the highest honors and your support.

Food Stores Rated by Score Cards

A DEFINITE use of publicity in inducing food stores and eating and drinking places to comply with the local sanitary code, will be undertaken by the Englewood, N. J., Board of Health, according to an announcement by Hugh Martin, Health Officer.

The principal violations have been failure to provide adequate washing facilities and sterilization for dishes, glasses and silverware; exposure of foodstuffs to human touch. Under the new plan, the health officer will visit each place and point out the violations. After a reasonable time he will return for re-inspection. At this time the rating of each establishment will be indicated on a score card that will note the percentage of compliance with the code and the violations. This card, the new regulation provides, must be posted in a place where it will be visible to all patrons.

Mr. Martin believes that this will result in placing the responsibility of compliance on the shoulders of the storekeeper or restaurant owner, who will no longer be able to plead that he was not aware he was violating the health laws.

The success or failure of this method depends entirely upon the patrons of the establishments inspected. The deduction made for each violation is shown in the reproduction of the "Score Card."

DEPARTMENT OF HEALTH
CITY OF ENGLEWOOD
NEW JERSEY
DIVISION OF FOODS AND DRUGS

Inspection of .....
Proprietor's Name .....
Location .....
Date .....

	Yes	No	Deduct 6%
Food exposed to flies			
Food exposed to flies and persons			12
Dishes and glasses properly washed			8
Detergent and/or sterilization used			6
Food handled in sanitary manner			7
Milk handled in sanitary manner			6
Water dispensed in sanitary manner			5
Uniforms clean			5
Good personal cleanliness			6
Adequate toilet facilities			5
Refuse properly stored			5
Premises generally clean			5
Proper refrigeration			4
Good personal cleanliness			5
Food fresh			4
Grade			

Remarks: .....

.....

Inspector.

THE ENGLEWOOD, N. J., SCORE CARD

Undulant Fever Caused by Floods

WHO would suspect that a case of undulant fever might be caused by a flood? When the flood occurred in March, 1936, in Connecticut, people were afraid of typhoid fever. As a matter of fact, there has been no single case of typhoid fever where the evidence is conclusive that it was caused by the flood of the Connecticut River. It is true that a case or two occurred where flood conditions might have been a factor in the infection, but the evidence is not conclusive.

On the other hand, a case of undulant fever occurred where the evidence appears clearly to point to the flood as the causative factor. It happened in this way. Long before the flood a case of undulant fever was traced to a raw milk supply. The dairyman put in a pasteurization plant. After that no more cases of undulant fever occurred on his milk supply. During the flood his pasteurization plant was put out of commission, and for a few days he sold raw milk. During this time one of his customers became infected and came down with undulant fever.

Thus, while undulant fever is actually caused by germs carried in milk from cows infected with the germs of contagious abortion, in this case the occurrence of infection may be charged to the flood, because the flood prevented pasteurization which would have killed the germs in the milk. Thus, it would appear to be a rather clear case that undulant fever was caused by the flood, according to the *Connecticut Health Bulletin.*

Mosquito Control in Memphis, Tenn.

FOR the past 16 years Memphis, Tenn., has carried on an Anopheles mosquito control program under the direction of sanitary engineers selected because of previous experience in malaria-mosquito control. A WPA malaria survey project was approved in Memphis in 1936 and a study made. Certain data were secured as to prevalence and distribution of the female Anopheles quadrimaculatus. All malaria cases from June 1 to October 1 were visited and were classified as to the source of infection.

A relationship seems to be shown between two areas of the city immediately adjacent to Wolf River and four protected areas when compared to female Anopheles quadrimaculatus and resident infection case rates for 1936. The results of this study indicate that a 30 per cent increase in the yearly cost of malaria control work in Memphis to include breeding areas adjacent to the city would possibly result in a 10 per cent reduction in the cases of malaria reported in Memphis. Further results in reducing malaria cases reported in Memphis will depend on the malaria-control activities in the Mississippi River Valley endemic area, in which Memphis is located. It is felt that a coordinating agency is needed for promotional and educational work in addition to the research work now carried on in the Mississippi River endemic malaria area, in order to secure maximum results in the malaria-control activities in this area.

—A portion of the discussion of a paper on Malaria Control by T. H. D. GRIFFITTS, M. D., Surgeon General, U. S. Public Health Service, presented before the Sixty-fifth Annual Meeting of the American Public Health Association.

Food Inspection in Dayton, Ohio

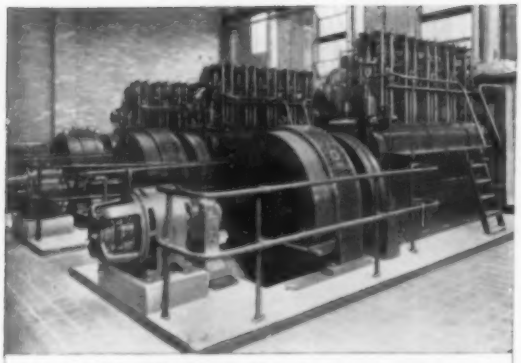
FOOD inspection in Dayton in the past few years has developed into quite a specialty, owing primarily to the fact that the consumer is demanding not only fresh, wholesome foods and food products but that they also be prepared, handled and dispensed in a clean and sanitary manner.

As a result of this demand and appreciation by the general public of the Dayton method of encouraging proper dishwashing and sterilization of eating receptacles in public places, the Bureau of Food Inspection and Sanitation is now collecting 500 such utensils per week for laboratory examination and is striving to get at least one sample per week from each such establishment in the city. A total of 21,825 eating utensils were collected for bacterial examination in 1936. To do this resulted in quite a bit of extra work for the Bureau and the laboratory, but the resulting improvement in the sanitary methods and equipment in Dayton food establishments justified the extra effort. This system was devised eleven years ago and has proved to be a health measure of major importance.

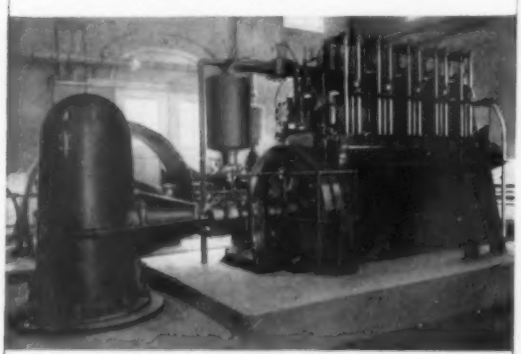
—From the Bulletin of the Division of Health, Department of Public Welfare, Dayton, Ohio.

Last of the Public Drinking Cups

THE community tin drinking cup of old school days has practically vanished, but the unsterilized drinking glass is still with us. Tests have shown that even a clean glass inverted on an unsterilized surface picks up from 40,000 to 50,000 bacteria on its rim.

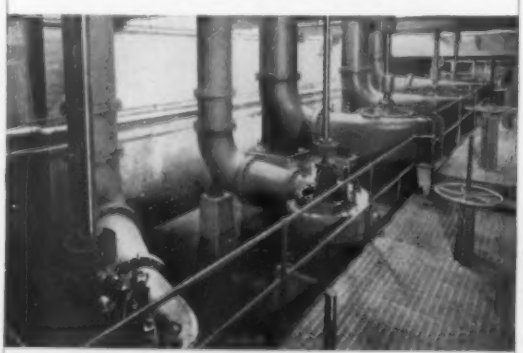


Three 300-hp. Worthington Gas Engines direct-connected to generators . . . operating on sewage gas. Coney Island Sewage Plant, New York City



300-hp. Worthington Gas Engine driving 20-inch Worthington Vertical Sewage Pump . . . 20 m.g.d. . . . through Farrell-Birmingham right-angle gear. City of Dallas, Texas

Three of five 84-inch Worthington Vertical Centrifugal Sewage and Storm Water Pumps . . . total capacity 1,125,000 g.p.m. Connors Creek Station, Detroit, Michigan



Five of nine Worthington Vertical Sewage Pumps . . . total capacity 91,000 g.p.m. Peoria, Illinois

Contributing prominently to the solution of sewage plant problems . . .

WORTHINGTON PUMPS for main raw sewage units, and for various auxiliary services, will be found in a large percentage of our modern sewage disposal plants, including many notable installations. The growing list of recent important contracts placed with Worthington is convincing evidence of this Corporation's position in the field.

And recently, developments for the conversion of formerly wasted sludge gas to useful power have also found Worthington in a leading position, with many successful installations of its gas* engines . . . selected from a complete line of 30 hp. to 1800 hp. units which meet all needs.

In any pumping or power problem...Worthington engineers are available for a study of your local conditions, and will submit complete and unbiased recommendations.

* Worthington Gas Engines are convertible to oil fuel operation . . . for service during periods when supply of sludge gas is low.

NOTABLE WORTHINGTON INSTALLATIONS

Connors Creek Plant, Detroit
Greater Peoria Sanitary District, Peoria
Main Sewage Pumping Station, Dayton
Sewage Pumping Station, Grand Rapids
Coney Island Sewage Plant, New York City
Pumping Station, Fort Wayne
Pumping Stations and Auxiliary Units, Lancaster
Calf Pasture Sewage Pumping Station, Boston

RECENT AWARDS

Southwest Plant, Sanitary District of Chicago
Wards Island Plant, New York City
New Sewage Treatment Plant, Columbus
New Sewage Treatment Plant, Detroit
The Point Sewage Pumping Station, Louisville
New Sewage Treatment Plant, Buffalo, and
A new plant for Portsmouth

WORTHINGTON PUMP AND MACHINERY CORPORATION
General Offices: HARRISON, NEW JERSEY
GE7-9 **District Offices and Dealers in Principal Cities**

WORTHINGTON

MAY, 1937

Vol. LII, No. 5

The American City

470 Fourth Avenue
New York

35 Cents, $2 a Year

Speeding Up the Routine of Municipal Purchasing

Correct Office Appliances Develop and Organize Facts, Which a Personnel Relieved of Drudgery Will Use Profitably

By RUSSELL FORBES
Commissioner of Purchase, City of New York

THE *essential* business of municipal purchasing consists of furnishing exactly the right product at the time it is needed, at the best price.

It is not the purpose here to describe for the municipalities of the country from 5,000 population up the organization of the Department of Purchase of the city of New York, nor its detailed operations, nor the kind and volume of work we perform in the course of a year.

In our large-scale work there are certain aspects that are common not only to purchasing everywhere but to the efficient transaction of a growing volume of business everywhere. One of these aspects, and the one which will be discussed here, is the use of correct office appliances which achieve two results: (1) they shorten the time between a department's need for a product, as represented by the requisition, and the delivery of goods to that department; (2) by decreasing routine drudgery, they permit the staff to spend much more time on actual buying (which never can be performed by machine), which requires the gathering of pertinent data; the assimilation, understanding and effective use of these data; the analysis of requirements; the decision as to how they shall be furnished; study of vendors' habits, records and facilities; the efficiency of the actual buying transaction.

Our purchasing department is organized into many divisions. In a smaller community, a number, and perhaps all, of these divisions would be concentrated in one man, as specialized compartments of his mind. The fact that our department has 24 divisionalized groups of employees is unimportant to an official in a city of 25,000 population. "What has that to do with us?" he asks. But the fact that the work of these divisions consists of essential steps leading to quick delivery of the right product at the best price, is important. It is our constant endeavor to make these operations more intelligent on the part of the personnel, and less routine by installing mechanical devices wherever we know them to be practicable. We want the purely mechanical work of the department to be done by machines. Our basic principles are applicable to purchasing for any community. The office appliances we use are applicable in kind anywhere.

The Requisition

The various departments of the city of New York which requisition us for supplies and equipment make out three copies of the requisition, sending two of them to the Department of Purchase. We send these first to our Expediting Division, to be given a requisition number consisting of the number of the month (5 for May), the day of the month (as 10 for May 10), and a number for the requisition in order of its receipt (as 075 for the 75th requisition received); thus in this case No. 510075. This number is placed on both copies of the requisition, and the duplicate is returned to the department from which it emanated.

A case card is made out for each requisition, the upper part carrying identifying information, and the lower part furnishing the history of the steps through which it passes. Four cards are made out for each requisition, two for cross-index and the other two to accompany the requisition in its travels toward final filling and payment.

Is the Money Available?

The Expediting Division sends requisition and cards to the Funds Account Division, which checks the money on hand for this purchase. It is the business of the Funds Account Division to see that no department exceeds its budget allowances. If the money is available in the budget, we make a reservation in the amount of the estimated cost given on the requisition against the fund. When the requisition returns as an order with a price on it, the actual cost is substituted for the estimated cost against the fund. Here again, the fact that this division uses ten double-register adding machines of a certain man-

ufacturer is unimportant; but the fact that there is available a machine that adds and subtracts, furnishes as many totals as may be needed, and gives the net result of the operations, is important to all who must accomplish a great deal of work in an eight-hour day. This machine must add or subtract the actual cost of an order to or from the estimated cost, and add or subtract this difference to or from the fund, in order to determine the available balance in the fund. To perform these calculations by hand would require the staff to expend all its energies in figuring, instead of now having ample time in which to study the practices of the city departments, with regard to requisitions.

The first job, then, is to check the estimated cost on the requisition against the money the department has available for the purchase; and then if all is in order, to enter this cost figure against the fund as a reserve charge. The requisition and cards are then sent to the Editing Division.

How Shall It Be Bought?

The Editing Division was created in 1935 for the purpose of determining whether any of the items on a requisition should be furnished from stock, bought on a requirement contract by which the items would be supplied at bulk prices agreed on for a period usually of six months, or whether they should be bought on contract ($1,000 or more) or in the open market (up to $1,000). The job of course is to divert as many requisitions as possible into stores issues and contract issues, and hold down the number of small individual open market purchases.

This unit, therefore, is equipped with a list of all storehouses, showing the classes of commodities which they carry, and which are the obsolete or slow-moving items. This record is kept by items, on rotary, visible index panels. These files, which carry detachable cards, permit rapid checking of requisitions, to assure that no merchandise is bought that can be filled from stores.

When the requisition has been thus analyzed, it is sent to the Buyers' Division, whose invitations to bid are made out by typewriter, either in special ink or on stencils for ready reproduction by duplicating machines. Meanwhile, the buyer, in whose field the needed supplies are, may request data and advice from the Price Record Division and receive market trends, previous conditions of purchase, sources of supply, and an analysis of the contract or order by individual commodities.

Efficient System of Price Data

The Price Record Division has just installed a new visible-record system in book form, which can be supplied by at least seven companies. It consists of large books 2 inches thick, holding 800 separate records, 28 records visible on each page, 56 on facing pages. Four books at $8 each hold 3,200 records. They are made in a number of sizes suited to any municipality.

The new records are complete, flexible. One clerk's desk can hold eight books, or 6,400 records. One thousand orders per day could be posted with this system, which greatly reduces drudgery and makes talent available for specialized work, permitting the staff to use its records to the advantage of the buyers.

Duplicating Invitations to Bid

The contracts and the invitations for open-market bids are sent to the Duplicating Division, where Mimeograph and Ditto machines make the number of copies desired. The Mimeograph machines are used when more than 75 copies are required and for preparing contracts of 2 to 52 pages. There are two of these machines, as follows:

Model 77 packs 100 sheets at a time and, as it runs as many as 160 sheets through per minute, it is necessary to keep feeding in more paper almost continuously.

Model 96 takes 500 sheets at a time and produces 120 printed sheets per minute. With this machine a line of type can be placed on a particular line on a printed form, owing to uniform feed. The paper is thus always under control.

There are four Ditto machines, of which two electrically-driven S-10 models are mostly used. They are hand-fed at a rate of about 45 sheets per minute. As the bid forms and purchase orders are printed in hectograph ink, the entire form, both printing and typing, is reproduced.

The other two Ditto machines, for emergency and for large forms, are hand-operated flat-bed machines, one capable of reproducing forms 14 x 16 inches, the other 18 x 30 inches.

All duplicating machines are serviced once a month.

While the invitation for bids is being duplicated, the necessary 10 to 30 envelopes have been Addressographed. Our plates list 12,000 vendors under 41 classes. The vendors are also listed alphabetically on cards.

The date on which a purchase order is sent out is cut into the order by an electric perforator, so that there will be no doubt on what date the supplies are to be delivered (so many days from date of order). All mail weighing not more than one ounce is metered.

Fanfolds Make Ten Copies of Purchase Order

The receipt of bids, their tabulation and public reading are more or less standard municipal functions. A list of the bids received is sent to the buyer, who checks and accepts the successful bid. The requisition and all the data are forwarded to the Typing Division, where the purchase order is made out on continuous forms fed through fanfold typewriters whose extra large type and hard platens make ten copies of each order. Why there are ten and who gets them, except that one is sent to the Comptroller as basis for payment, is of less consequence here than their semi-mechanical method of production.

The value of making these copies in one operation is obvious—every recipient knows he has received the facts. The continuous forms speed the work by half, through elimination of handling individual forms and carbons. If need be, we can telephone for prices in the morning and send out the purchase order that afternoon, where it formerly took much longer to get out the order. These forms come in cartons of 1,000 to 5,000 forms made up of 10 copies each. A battery of 23 new fanfold typewriters has just replaced the similar machines of the same make which we have used for a number of years. In addition, there are a Varityper for cutting stencils and special forms, and an electric typewriter. In the course of a year, this division types more than 60,000 requests for quotations

and as many orders, aggregating some $5,000,000. This unit also types the contracts, of which there are about 12,000, amounting to $19,500,000.

Tabulating Machines Account for Every Stock Item

When commodities are purchased direct for delivery to the department requisitioning them, our labor ceases with their receipt. But the larger number of requisitions are filled from stock, and all these stock items must be controlled. As commodities are delivered to or issued from stores, the facts are sent to the Balance of Stores Division. All information relating to each item is reduced to code numbers and punched on tabulating cards, so that many classes of information can be assembled and inventories made.

In order to use tabulating machines, each item must be identified by a code number. To facilitate this, the supplies in the stores are grouped into 79 classes covering 145,000 separate items, from mice to motorcycles. We use 70 different makes of trucks and passenger cars. Cars happen to be Class 8; Fords are 8FO; Chevrolets are 8CH. Thus the complete inventory in our 45 storehouses has been coded and is automatically kept up to date.

Cards are filed both alphabetically and numerically. To accomplish this job of machine accounting, we use ten alphabetical punch machines, six verifiers, two multipliers, one interpreter, one gang punch, four tabulators, and three sorters. All these machines are contracted for on a rental basis.

Before describing briefly how these machines operate and what they do for us, it might be useful to know that installations of appropriate size are applicable to any city of 100,000 population or more. They can be used wherever there is segregation of expenses or diversification of charges. The problem in a nutshell is: Here are so many items costing so much money; what does it mean? It is impossible to find out accurately, let alone promptly, by manual methods. In a city of 100,000, one verifying punch, one alphabetical tabulating machine, and one sorter should cover the needs of the city. This battery can be run by a man and a girl, with a rental cost of about $400 per month.

The process is as follows: The documents are given to the punch operator for transcribing their data to tabulating cards by means of punched holes. The cards are then passed along to the verifier for checking as to accuracy and to correct errors. Then the punched tabulating cards go to the multiplier to determine the total cost of each item (unit price times quantity). Information common to a number of cards, such as storehouse and date, are punched automatically by the reproducer instead of by hand. To identify the cards, they are run through the interpreter, which prints the necessary information along the top of the card. The cards can be sorted into groups, by code number, storehouse, requisition number, or any other desired classification at the rate of 400 cards a minute. The cards are then sent to the tabulating machines, which print the information on the proper forms. The completed reports are sent where required. For speed, use fanfold paper with one-time carbons, so that the machine does not have to be stopped to change carbon sheets or insert paper—a 75 per cent saving in time.

A report we are just completing shows exactly what materials were used by each department during the last seven months of 1936 and the first five months of 1937. One of our regular jobs is the preparation of a monthly statement showing what each department has of the following: money in budget, money spent, allocated for requisitions, available balance. All vouchers that have been paid for open-market and contract purchases are tabulated here for the purpose of checking the voucher ledger and the departments' accounts.

Verifying the Bill

The Vouchering Division receives copies of all orders and contracts and of all invoices against them. This division receives storekeepers' reports, which are certifications from delivery points of the supplies received. The quantities of the items on the invoices are checked with the storekeeper's reports, and if in proper order, the voucher is issued for transmittal to the Department of Finance through the Funds Account Division. This auditing job is performed with the aid of eleven calculating and listing machines.

Give Brains a Chance

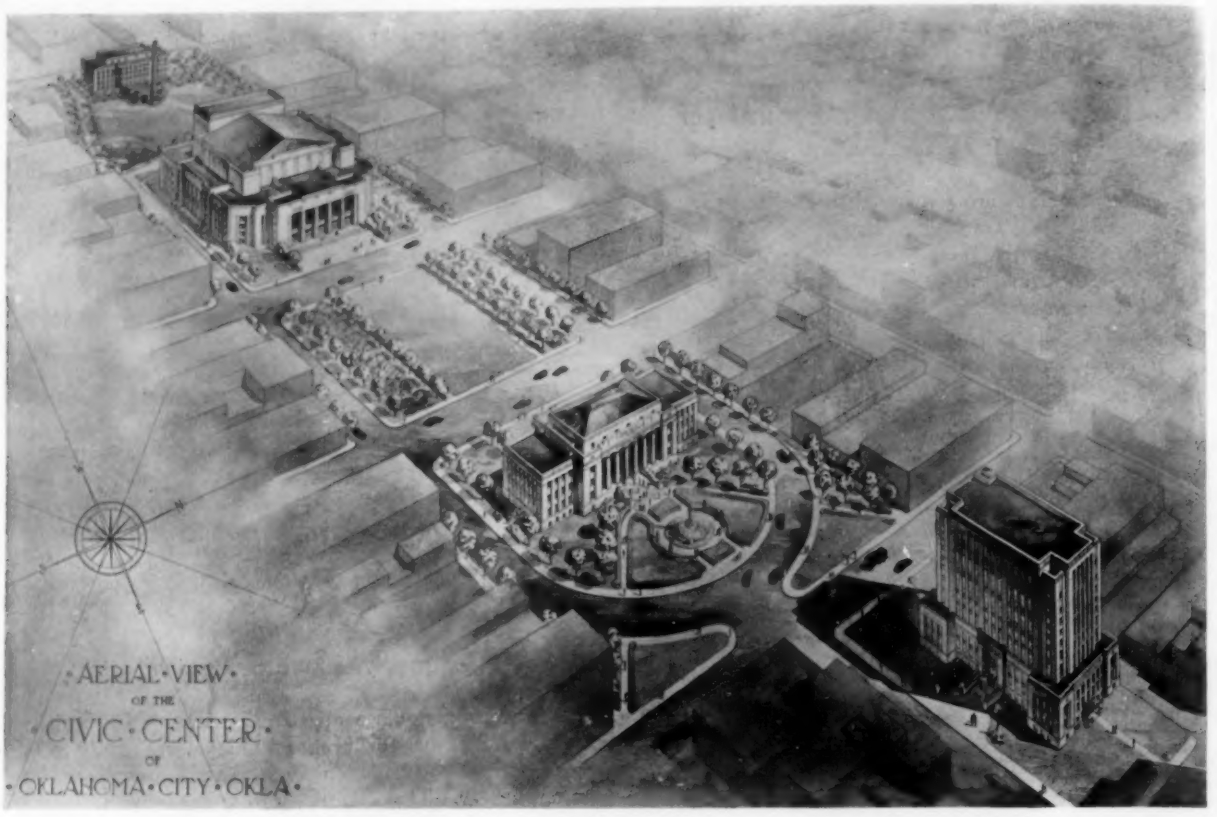
Never fear that office appliances will replace brains; they release brains for proper employment, which is to make use of the calculations and data made available by the appliances. These appliances are necessary wherever there are arithmetical computations to be made; writing to be made legible; information to be recorded and referred to; statistics to be classified and compiled; documents to be duplicated.

Aside from the mere cost in money, good management recognizes that it is better for the employee and the employer to have people busy at important work even if they do not do it very well at first, than to have them engaged in drudgery which machines have already been devised to do better. It is drudgery that discourages and saps ambition. Correct office appliances tend to give men and women work worthy of them and make them realize that their future is indeed in their own freer hands.

EDITORIAL NOTE.—This month's cover shows in sequence the office appliances in the regular routine procedure of the Department of Purchase of the City of New York. At the top left is a double-register adding machine used in checking the requisition against funds available for the purchase. Below and to the right is a rotary card file carrying the requirement contracts, and these cards are being examined to see if the new requisition can be filled from these contracts. At the top right is a duplicating machine making copies of the call for bids. At the middle left, the unit prices are being read publicly, and at the right typewriters are making ten simultaneous copies of the purchase order on multiple-copy continuous forms. The listing machine at the bottom left is used in checking quantities of the items on the invoice against the storekeeper's report, so that the voucher may be issued for payment by the Department of Finance. The key punches at the bottom right add the items just purchased to the tabulating cards which form the up-to-date record of the Balance-of-Stores Division.

Office Appliances in Tax Work

A practical discussion of machine methods that are now speeding the production of assessment records and the collection of taxes will be found on page 593 of THE MUNICIPAL INDEX for 1937—*have you your copy?*



PLAN OF CIVIC CENTER DEVELOPMENT, SHOWING ARRANGEMENT OF BUILDINGS AND STREETS

Site of Former Railroad Yard Becomes Oklahoma City's Civic Center

By DONALD GORDON
Oklahoma City Park Superintendent

OKLAHOMA CITY'S new $3,000,000 Civic Center, now rapidly nearing completion, is the culmination of many years' concerted effort in removing a troublesome barrier to city development and converting it into a civic asset.

This barrier consisted of main-line railroad tracks, passenger and freight stations, yards, and other terminal facilities, crossing the city just north of the central business district and cutting it off from the principal residential area. Frequent traffic delays due to train and switching movements brought repeated demands for removal of this barrier. Furthermore, the railroad yards and warehouse district stood directly in the natural path of expansion for the business district.

Finally, in 1920, under the leadership of the Chamber of Commerce and other civic groups, an agreement was entered into between the city and the three railroad companies involved, which provided for the relocation of the railroad tracks and accompanying facilities in a more suitable location. A $4,000,000 bond issue was voted by the people to finance the city's share of the cost.

As a part of this transaction, the city acquired the property rights formerly held by the railroads in the land that was vacated. This land consisted of a main area approximately 400 feet wide and 1,500 feet long, a smaller area of approximately one-half block, and a third area 100 feet wide and three blocks long. A total area of 18 acres was included.

Proposals for the utilization of this area by the city were numerous and varied. At this particular time, however, the firm of Hare and Hare, city planners, were engaged to prepare a complete plan for the city's future development, and they suggested that the area be used as a site for several much-needed public buildings, including a new City Hall and an Auditorium. The land happened to be eminently suited to such use, being located adjacent to the main business district and readily accessible from all parts of the city. Such utilization, it was thought, would also stimulate high-class private building development nearby.

The city's opportunity to carry out such a plan presented itself in 1935, when the Public Works Administration program for constructing public improvements on a 45-55 basis was inaugurated. Inasmuch as Oklahoma County was desirous of building a new Court House, a joint plan of development was agreed upon which provided for a

Court House, a City Hall, an Auditorium with a seating capacity of approximately 8,000, and a new Police Headquarters and jail building. These four buildings will cost $3,176,318, of which $1,747,210, or 55 per cent, has been provided by the city and county through bond issues, while the remaining 45 per cent is contributed by PWA.

In order to avoid unnecessary delay in getting the four buildings started, the architectural work was divided between four groups of architects. It became the duty of the writer to coordinate the work of these groups so as to secure general architectural harmony among the four buildings, and this was accomplished through the cooperation of all concerned. Work was started on the buildings in December, 1935, and all the buildings will be ready for occupancy early this spring.

The arrangement of the four buildings within the area has been determined largely by certain physical and legal restrictions, which did not allow much variation in site planning. The shape of the area was one controlling factor. Another was a series of lawsuits that were started as soon as the railroads vacated the property, in which reversionary rights were claimed by original property owners and others. Some of the property is affected by these claims, while other parts have clear titles. Inasmuch as it may take several years to clear up all these claims, it was deemed advisable to construct the several buildings so far as possible on the clear property.

The City Hall, Auditorium and police headquarters buildings are located within the main portion of the area. The City Hall, which will cost $875,000, is in the eastern part, on the axis of First Street, which was closed for one block to provide an adequate site for this building. West of the City Hall, and separated from it by a plaza 600 feet wide, is the Auditorium, costing $1,042,000. Farther to the west and back of the Auditorium is the Police Headquarters. This building will cost $172,000. The Court House, costing $1,200,000, is situated on a site east of the City Hall and north of First Street. From this building eastward extends a narrow strip of land flanked by the rears of commercial buildings. The nature of development of this 100-foot strip has not been definitely decided upon, because of the legal and property-right aspects involved.

All the building sites have ample areas for landscaping, for which $50,000 has been appropriated by the city. Landscaping work, including the construction of necessary driveways on both sides of the main area, is being carried out by the Park Department and the Engineering Department of the city.

The transformation of Oklahoma City's former railroad yards into a finished Civic Center is being carried out with unprecedented speed. Heretofore it has been almost impossible for a city to carry a civic center development of such magnitude to completion in one single construction project. This has been made possible only through the fine cooperation of the City Council, the County Commissioners and the PWA, and the confidence of the public in voting the necessary bond issues.

ABOVE—FORMER RAILROAD YARDS, STATIONS, ETC., OKLAHOMA CITY

BELOW—THE SITE AS IT IS NOW BEING DEVELOPED

ARCHITECTS' DRAWINGS OF THREE OF THE CIVIC CENTER BUILDINGS—POLICE HEADQUARTERS, MUNICIPAL BUILDING AND CIVIC AUDITORIUM

Architects for Municipal Building and Police Headquarters: The Allied Architects—Leonard Bailey, President; T. R. Bramblet, C. F. Drury, Ed Gahl, John D. Jeffers, C. L. Monnot, B. Gaylord Noftsger, Guy C. Reid, W. H. Schumacher, Walter Vahlberg, George Winkler.

Architect for Civic Auditorium, J. O. Parr.

"It Can Happen Here"

Are We Prepared for a Boom?

UNDER this title and sub-title, the Fairfield County Planning Association, with headquarters in Bridgeport, Conn., has just issued an exceedingly effective bulletin, some of the illustrations of which are reproduced on this and the facing page. The conditions described and the remedies offered are of such general application as to make the text of this bulletin worth quoting in full:

The growing demand for modern housing facilities in conjunction with the low volume of construction during the depression period points to marked future activity in residential construction in Fairfield County. The last expansion in the 1920-1929 boom resulted in poorly laid out subdivisions, a crop of 20-foot lots laid out in straight rows over rough topography impossible to sewer. Natural brooks and drainage courses were put into sewers at great expense, instead of being used as a natural asset for the development of public recreational areas.

Little or no control by local authorities was exercised over the layout, so that, in many cases, no relation between streets of one layout with those of adjoining plats existed.

When the boom was on, it was difficult to secure any regulation of these practices, which have cost money to correct and which have left behind disappointed owners, perplexed officials, and the constant added costs of delivery and transportation, and water and sewer services expensive to install and operate. New streets cut through tall buildings to correct these conditions are expensive.

The question arises whether local communities are prepared to face the problem of opening new housing areas, extensive building operations, and innovations in building methods with appropriate means of guidance and regulations that will be of lasting public benefit.

Those communities that are organized for planned development and zoning and that have effective codes are best prepared to meet a rapidly expanding building program.

What Can Be Done About It?

Several factors capable of public control influence the stability of values in new subdivisions. Sound construction of buildings can be secured through adequate building codes protecting the investor and the community from shoddy materials.

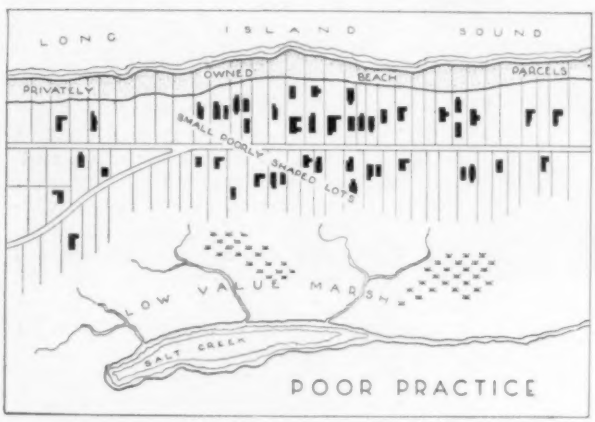
Adequate size lots and connected layouts of streets can be secured through subdivision regulations that prevent a man from spoiling his own land and his neighbors by chopping it up so no one can benefit. In the last boom more than 1,500 freak lots were cut up in Fairfield County—some 18 feet wide and 2,000 feet long, and many others 20 feet by 80 feet wide. No such layouts of property can prove valuable to anyone. The 20-foot lot subdivision in an isolated section causes sanitation and health problems and a school burden that is not paid for in taxes received.

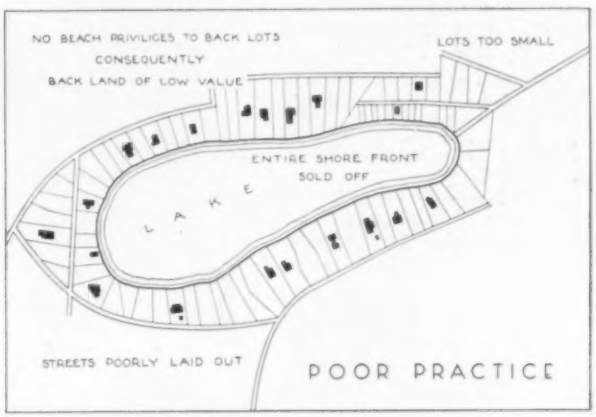
Recent studies made by the Association show us that though 98.2 per cent of construction in Fairfield County has been in single-family houses, it is not all well protected by zoning.

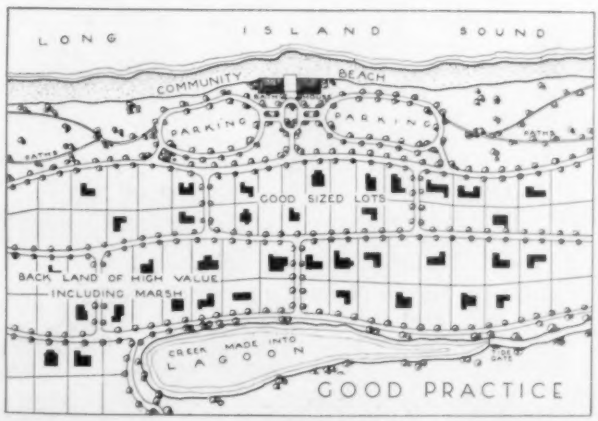
Many zoning ordinances were made in times when the two-family house was in favor and large two-family house zones were provided. With present trends pointing toward the single-family home, it is probably time to change the zoning of many towns, to protect this type of development.

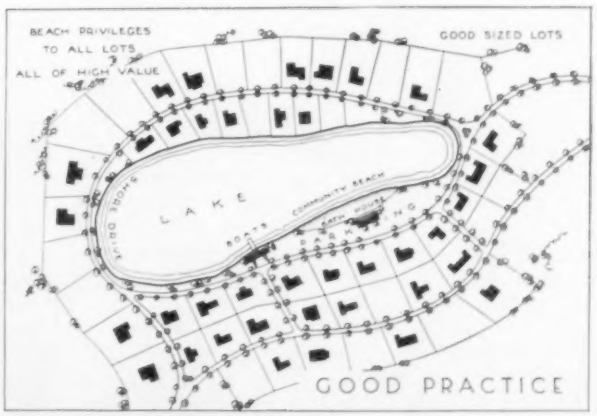
A recent survey made by the Fairfield County Planning Association showed that 34.6 per cent of the property along the Boston Post Road was open land. If an adequate buffer strip of planting is provided along the Post Road frontage, the back lands become desirable acreage for residential development. This residential area would have the advantage of proximity to the shore and recreational areas, business and shopping districts and be easily accessible to, and at the same time protected from, the Boston Post Road.

Similarly, a layout along a lake, seashore or river should reserve a part or all of the shore for public ownership and in that way make valuable a large tract of land in the rear.




NO BEACH PRIVILIGES TO BACK LOTS CONSEQUENTLY BACK LAND OF LOW VALUE
LOTS TOO SMALL
ENTIRE SHORE FRONT SOLD OFF
LAKE
STREETS POORLY LAID OUT
POOR PRACTICE





POOR PRACTICE AND GOOD PRACTICE IN WATERFRONT DEVELOPMENT

Shore Development — Pond and Lake Development

Canton's Civic Achievement Program

By DALLAS L. HOSTETLER
Secretary, The Canton Chamber of Commerce, Canton, Ohio

THE beginning of a new era in the civic, commercial and industrial history of Canton, Ohio, is traced to an adaptation of an old idea. This is the several-century-old "town meeting" plan, the modernization of which in Canton, with the aid of the American City Bureau, has provided an effective approach to the solution of many community problems. Under the sponsorship and leadership of the Canton Chamber of Commerce, as mentioned briefly in THE AMERICAN CITY at the time, a series of gatherings was held to take inventory of the city's assets and liabilities and to formulate a common purpose looking toward Canton's growth and prosperity.

Attendance at each of these town meetings intentionally was limited to a small number of persons. The size and utter informality of the meetings was the real secret of their success. Men and women unhesitatingly stood up and voiced their suggestions, their criticisms and their thoughts on the most important needs of the community. From the suggestions of the townspeople, in a thoroughly democratic manner, the Chamber of Commerce fashioned its program of activity. The citizens themselves took active part in championing their proposals, and machinery was soon set in motion to transform them into realities.

What were some of the most auspicious proposals made by Cantonians at these modernized town meetings, and what has been done about them?

Industrial Development

Most repeated of all the suggestions was the one which emphasized the importance of continued industrial development. There was no delay in doing something definite about this matter. A Canton Development Corporation was organized for the sole purpose of assisting present plants to expand and of bringing new factories to Canton. A fund of $35,000 was raised to finance these efforts for the current year. Since the corporation was organized, six new industries have been secured for Canton, and today a score of important leads are being followed up.

On the subject of industrial development, another large group of persons emphasized the fact that industry needs an abundant and unfailing supply of water. The city's supply comes from wells, and experts point out that at best this source of supply is uncertain. Accordingly, a group of citizens acting as a Chamber of Commerce committee began a study of this problem, with the result that an application already has been filed for the inclusion of a conservancy dam a few miles north of Canton in the Muskingum Valley Conservancy program.

Numerous persons attending the various town meetings registered complaints regarding the inadequacy of water pressure in various sections of the city, and emphasized the fact that this condition was detrimental to the health and safety of the community. Today, in Canton, this situation is being corrected through a $100,000 program, including extension and enlargement of water mains and establishment of important cross-connections to give every part of the city an unfailing water pressure.

Members of the Stark County Foremen's Club added their answer to the question of what advantages industry is seeking in the present period of nation-wide decentralization. "Industry needs trained men," they declared, and today a Foremanship Training School is in operation in Canton. Also, McKinley High School is offering for the first time in its history an all-day trades school.

Next, the Canton Chamber of Commerce felt that more of its citizens should be acquainted with the city's industrial operations and arranged a series of plant visitations to a number of Canton's major industries.

A SCENE IN A NEW SECTION OF CITY PARK, CANTON, OHIO
Made possible through the cooperation of The Canton Chamber of Commerce and the WPA

Parks and Playgrounds

Another group of citizens asked the question: "What can we do to make Canton the kind of city in which new industry wants to locate and in which it can operate profitably?" They then answered their own question in this manner: "People want happiness and a place to play in during their leisure time, and industry wants a location where folks have an opportunity to breathe and where every member of the family has a chance for development and improvement."

Out of these suggestions grew a $1,250,000 park and playground program for Canton. A 40-acre arboretum, skating lagoons, swimming pools, horseshoe and tennis courts, shelter houses, comfort stations, baseball diamonds, drives, boulevards, rustic walks, bridges and spacious lawns are under construction. The plan includes a large athletic stadium for sports of various kinds and for outdoor pageants and entertainments. Men and women had to work and to be civic-spirited to transform this magnificent project into reality. Government agencies promised a $1,000,000 appropriation for labor on condition that land and materials were made available through some other source. And so, under the direction of the Canton Chamber of Commerce, the sum of $65,000 in cash was raised by popular subscription in a whirlwind campaign that had the enthusiastic support of the entire citizenship. Public-spirited individuals donated a total of 200 acres of land for park and playground purposes, and the entire million-dollar program met with such popular approval that various firms made additional pledges in materials such as cement, gravel, trees and shrubbery, stone and lumber, and in the use of trucks and tractors.

In 1933, the amount of land in use for park and playground purposes was 160 acres. Today, as a result of the Chamber of Commerce program, Canton's park and playground system has a total area of over 450 acres.

Retail Business

Merchants who attended the town meetings voiced the need

of developing retail business and emphasized the importance of an attractive business district in the orderly and well-balanced growth of a city. Consequently, as a definite part of the "Forward Canton" business recovery program, a strong retail merchants board began operations as a division of the Canton Chamber of Commerce. A unique "Welcome Neighbor" campaign has proved an outstanding success in building good-will for Canton among the entire surrounding countryside.

At most of the town meetings, one or more of the city's business and professional men asked this question: "What can we do, collectively, to protect ourselves against the great number and wide variety of solicitation schemes, ticket-selling campaigns and promotions which literally are costing us thousands of dollars a year?" Chamber of Commerce members and others agreed upon a plan which has proved unusually effective. The arrangement now in effect provides that a solicitor will not even be heard by any parties to this agreement unless he carries with him and presents a letter from the Chamber office stating that his proposition has been fully investigated and found to be legitimate in every respect.

Civic Art and Public Safety

The interior of Canton's new post office has been decorated with a series of nine oil-painting murals as the result of a suggestion made by one of the citizens attending a town meeting. At another meeting various interested citizens insisted that the Canton City Auditorium was a veritable fire-trap, unsafe for any use. Immediately every effort was made to eliminate all existing hazards, and the people felt considerably safer when graduation exercises were held in June for 1,000 McKinley High School students.

The town meetings also revealed the fact that both the fire and the police equipment of the city was old and in exceedingly bad condition. Recently, after months of careful study and planning, a bond issue of $85,000 was approved for the purchase of vitally necessary police and fire equipment. Immediately twelve new police cruisers, equipped with chemical fire extinguishers, a modern two-way police radio system, three 750-gallon fire department pumpers, an 85-foot aerial ladder and 6,000 feet of fire hose, were acquired.

Continued Vigilance

For weeks after the series of town meetings was concluded, the idea grew that the citizens in general should be interested in a program of maintaining a sound local government and that civic leaders should contribute their best judgment to formulating it. Finally, after preliminary conferences and careful planning, the President of the Canton Chamber of Commerce appointed a Civic Affairs Committee, with the proposal that it be organized on a permanent basis and welded together for group action to assist duly elected city officials in the solution of harassing financial and law-enforcement problems. The Chamber President took the position, and publicly expressed it, that affairs of the municipality deserve the interest, vigilance and cooperation of citizens generally. Today the Civic Affairs Committee, representing the best judgment of men from Canton industry, commerce, finance and professions, is vigorously upholding a plan to guarantee Canton a clean and businesslike administration and to make it a city known for sound economic policies and healthy enforcement of laws.

SWIMMING POOLS, BASEBALL DIAMONDS, TENNIS COURTS, HORSESHOE COURTS AND FOOTBALL FIELDS PROVIDED IN CANTON'S MILLION-DOLLAR PARK AND PLAYGROUND PROGRAM

The McKinley Memorial is in the background

A SECTION OF CANTON'S 5-MILE PARK DEVELOPMENT ALONG WEST CREEK

A skating lagoon is shown near McKinley Memorial, in the foreground. A 40-acre arboretum is in the background

A LAGOON AND SHELTER HOUSE

Successful Refuse Service

Garbage Department Serves 72 Square Miles with 1,001 Miles of Streets

BETWEEN 1930 and 1937 the population of Houston, Texas, increased a total of 78,240 to a grand total of 400,000 people. Over $18,000,000 in building permits were issued in 1936. Presaging still further increases of population, the 1936 annual report of the Garbage Department shows that Houston is not fearful of this added burden of responsibility, for it states, "With confidence, service and cooperation in our organization, we greet the future with smiles."

Contract Collection

The Garbage Department consists of two divisions—collection and disposal. The collection of garbage is done by contract, the service equipment consisting of twenty 3-ton trucks, six 1½-ton trucks and eleven wagons. This equipment is subject to service every day in the year. The city is divided into districts, and the equipment is checked out by the inspector from the central office every morning. Seven inspectors travel throughout the city to insure the sanitary handling of all refuse collected.

Most of the garbage is collected from the curb, but there is some alley service. The curb system is much faster. A standard container is required for all garbage, and it must not be over two bushels in capacity and must have a lid. In the business district there is day and night service; in the thickly populated section, three collections a week, and in other sections one and two collections per week. During the Christmas season between 30,000 and 35,000 trees were collected and destroyed.

The collection of garbage from hotels, restaurants and hospitals is done entirely by private hog raisers, without cost to the city. They are required to remove trash and accumulations of rubbish and to keep the premises clean. Wet garbage or slop is moved at night from these places under the direction of an inspector. The containers are sterilized daily. It is estimated that this service saves the city about $35,000 a year.

Waste paper is collected by the Houston Paper Stock Co., under the supervision of the city. This firm collects about 3,000 tons a year without cost to the city, and this service is estimated to save the city about $4,000 a year.

Dead animals are collected as promptly as possible by the city and are cremated at once. There is a charge of $4.00 for larger animals such as cows, horses and mules. If people are unable to pay the fee, however, service is given without payment. A total of 39,919 cats and dogs were collected and cremated in 1936 in addition to 264 horses, cows and mules. This service has been satisfactory, and practically no complaints received. The S. P. C. A. delivered 7,101 dogs and 4,534 cats to the city to be cremated.

Incineration of Garbage

Collection is distributed so that there is a continuous flow of garbage to the incinerators throughout the day. A careful study of the variation in the garbage collected in different parts of the city has been made, so that the collections have been arranged to furnish a fair proportion of the drier garbage and a reasonable volume of combustibles for each incinerator. The head of the Department has been in the service for fourteen years, and 90 per cent of the employees of the Department have been working in the incinerators for a period of five years or more; and with hearty cooperation within the Department the best results possible are secured. The garbage from some parts of the city contains practically no combustible material and will not burn unless some fuel is added to it. No coal or other purchased fuel is used at any of the incinerators for the burning of garbage.

The first loads of refuse, which have the least moisture, are placed in the hopper at the fire door, which makes it possible to get a good fire started. The hopper attached to the stack receives the next loads, and with proper stoking there is no trouble in disposing of all the garbage by burning to a mineral ash. The cost of incineration for 1936 was low because the city made no expensive repairs or renewals in the incinerators and it was a very dry year.

There are five incinerators in operation at the present time. Up to July, 1936, six incinerators were used. The incinerators are scattered throughout the city. The oldest plant is located near the heart of the city. Business has developed all around the plant, and about ten years ago a considerable number of complaints were received regarding this incinerator. Owing to careful operation to increase the temperature of combustion, this incinerator is now burning the garbage to a mineral ash without nuisance and without extra expense for incineration or for collection. The Magnolia Park incinerator was closed down in July because it is located too near the ship channel.

The incinerators are burning beyond their rated capacity, the largest burning about 600 tons daily, and the two smaller ones are burning around 200 tons daily. There are twenty men working at the three large plants and six men working at the two smaller plants. No skilled labor is used at any of the incinerators. The foremen receive $4.60 per day, and the white laborers receive $4.00 per day. The Negro laborers are paid $2.65 per day and all work eight hours daily.

The following table shows the capacity and cost of construction as well as the date the various incinerators were built:

Incinerators	Units	Capacity	Built	Cost
5th Ward (new)	2	25-200	1916	$8,000
Howard Street (old)	1	40	1923	19,000
5th Ward (new)	1	40	1921	26,500
Studewood	1	40	1921	
Howard Street (new)	2	80	1925	68,300
Velasco Street	2	80-200	1925	
Patterson Street	2	150	1929	60,000
Magnolia Park	1 (closed)	15-75		17,300

As fast as ashes accumulate at each plant they are removed by a truck, which has plenty of room to get near the fire box. There are five Superior incinerators and one Nye odorless incinerator. The Nye incinerator is equipped with a blower system and is the newest incinerator in the the city.

The Garbage Department is operated under the direction of W. S. Webb, Chief Sanitary Inspector.

Welwyn Garden City Wins Out

Pre-planned Community Proves Value for Homes and Industry

By SIR THEODORE CHAMBERS, K.B.E.
Fellow of the Institution of Chartered Surveyors

THE land for Welwyn Garden City, the second Garden City built in England, was purchased by Ebenezer Howard in 1919, at a price somewhat, but not much, above its value for agricultural purposes. At that date the 4 square miles of territory, although within 25 miles of London, was a remote, rather inaccessible, piece of the countryside. Two or three farm houses and a few cottages for agricultural laborers were the only buildings, and these were approached by narrow country lanes.

In that period of high prices and dear money, a bolder scheme than that of developing a new town, satellite to London, could scarcely have been conceived. Howard's idea, stated in simple terms, was that of building a self-contained, independent industrial town of reasonable size, well planned in all its parts, providing the maximum of satisfaction for its inhabitants in their labor and in their life outside working hours. He believed that these conditions could be secured more rapidly and more completely by building a new city *de novo* on virgin land than by the slow process of reconstructing an existing unit encumbered by "vested interests," dependent on the maintenance of the *status quo*.

UNSPOILED COUNTRY AND PLANNED TOWN, WELWYN GARDEN CITY

SECTION OF WELWYN, SHOWING SITES OF TWO FACTORIES PICTURED ON PAGE 59

Before the pioneers were able to organize a company to promote the project, a pin had been pushed into the bubble of the short-lived post-war boom, and it was with the greatest difficulty that the promoters were able to proceed with the undertaking. From 1919 till 1933, when the Company was reconstructed, the history of the Company is one of the unceasing overcoming of well-nigh insuperable financial difficulties. Wave after wave of deflation reduced the value of all capital works undertaken during periods of higher price levels. Houses which had cost £1,000 in 1920 had to meet the competition of similar houses which could be built later for £300. The fall in costs of construction affected adversely the values of everything the Company had done of a capital nature. Roads, sewers, water works, disposal works, buildings of all sorts —all could have been produced in later years at lower price levels. At the same time the Company was saddled with high interest rates on loan capital. It was only by reason of the intrinsic merits of the project and the inherent possibilities of the future that the Company in 1933 was able to make terms with the holders of shares and debenture stocks and to reconstruct the capital of the concern on a sound basis. The losses which were involved were considerable, but the proprietors of the prior charges, faced with the alternative of foreclosure and probable liquidation, met the situation with generosity, and the continuity of the enterprise was secured. Last year the Company's shares entered the dividend list; on a small scale, it is true, but the prospects for the future are considerable.

In addition to the normal development of the land, the parent company, through various subsidiaries, builds factories, shops and houses. It owns the chief department store. It operates the Electricity Supply Company, and conducts other businesses of an ancillary nature.

In 1926, the area of the town—some 2,460 acres*—was constituted an "Urban District," and its local government is in the hands of an elected Urban District Council functioning under the statutory provisions of the English Local Government Acts. The Company has transferred to the

* An additional area of 700 acres adjoining the original estate has been purchased recently by the Garden City Company, making the whole area in single ownership 3,160 acres.

Council the water undertaking and the sewage-disposal works, which it originally constructed, and the Local Authority exercises the normal jurisdiction over the town in respect to highways, street lighting, health and sanitary matters. The happiest relations exist between the Board of Directors of the Company and the elected members of the Urban District Council, and between the officials of the two bodies.

The present population is approximately 12,000, of whom possibly one-quarter are dependent upon London, the principals of the families traveling to and from the Metropolis; while three-quarters depend for their livelihood upon the factories, workshops and other local sources of employment.

The number of inhabited houses is over 3,000. Of these, 892 were built by and belong to the local authority, having been erected under the various post-war Housing Acts. The rents, including rates and water charges, range from about $2.60 a week for a two-bedroom, non-parlor cottage, to $4.70 for a four-bedroom, parlor cottage. Most of the houses are provided with well-built sheds. All have bathrooms and are lighted by electricity. Electric cooking equipment is commonly used. The gardens are ample in size and are almost invariably well cultivated. It is probable that the annual value of the agricultural produce from the built-up area in the form of fruit and vegetables is greatly in excess of that produced in the original open fields. As an additional room in summer for children and grown-ups alike, and as a place of recreation all the year round, the gardens possess a social value which cannot be exaggerated.

Factories and Stores

There are upon the register today 45 factories, 16 workshops and 15 registered work places in the town. Two American firms of standing, the Shredded Wheat Co., and the Norton Grinding Wheel Co., own and operate the two most important factories in the town. Both buildings are stately edifices standing in their own grounds. The factory of the Shredded Wheat Co. was the first noteworthy plant erected in the town in 1924, and it has been consistently prosperous. It has been a great asset to the town and it is a debt owed to the United States.

The Company's policy in regard to retail shops was dictated to a large extent by circumstances. It was obviously necessary in the earliest days to provide for the full needs of the first inhabitants. The nearest village was distant some three miles, and something had to be done about it. Various interests were approached, but capital was chary of embarking in such a speculative sphere. The Company had perforce to start its own general store. This business has today a yearly turnover of over $1,000,000. There is a large central store, and four branches in different parts of the town. Although the service was fairly complete and covered all the main requirements of life, there arose a disposition on the part of the inhabitants to criticize the element of monopoly. Prices were, however, in fact strictly competitive, and the service was, on the whole, efficient. Itinerant vendors and metropolitan stores with delivery services would have kept a check on any tendency to exploitation. The ability of the housewife to do all her shopping under one roof was appreciated, but there remained the psychological factor. People coming from other cities regretted the absence of their streets of shops and missed the pleasure of wandering around comparing goods and prices.

Thus, independent individual shops were encouraged to start operations, and a definite shopping center came into being, and, while the Company's store remains the principal shop of the town, some twenty proprietary establishments are now carrying on business.

Recreation and Education

The Cinema, which seats 1,100 persons, a noteworthy building, designed by Louis de Soissons, the Company's architect, who has been responsible for the town plan and the majority of the buildings in the town, was also built by the Company. This establishment has now been disposed of to a well-known Cinema Circuit, which will also promote additional theaters as the demand arises.

The educational facilities of the town are well provided for. The public elementary schools in different parts of the town have been provided by the County Council and are run on normal lines. By the nature of things, Welwyn has attracted, in the main, a population young in years. The birth rate per 1,000 in 1935, was 19.8, as compared with 14.7 for the whole of England and Wales; while the death rate was only 7.4 per 1,000, as compared with 11.7 for the rest of the country.

The average age of the female population is just under 30, and of the males just under 27 years and six months. This is five years younger than the average age of the population in the county as a whole, which is 34.5 for females and 32.5 for males. Of the population in 1931, five years ago, 3,248, or more than one-third of the population, were under 21 years of age, and, what is perhaps more remarkable, 1,922, or just under a quarter of the whole population, were under ten years of age. Apart from immigration, these figures indicate that approximately 200 boys and girls living in Welwyn in 1931 could be expected to reach school age every year. Manifestly these conditions presented a problem to the educational authorities, and demanded a vigorous policy of school building, which has been efficiently adopted.

With the rapid influx of a population of young people engaged in the factories and workshops of the town, the question of the employment of leisure hours, both in winter and in summer, has been a constant problem. The provision of open spaces for organized games has been studied from the earliest days, and between the Company and the Urban District Council it is expected that sufficient provision will be maintained. There should be no difficulty in providing adequately for sports grounds and playing fields as the population increases.

Health Association

In health matters there is a similar cooperation between the Company, private and personal effort, and the Local Authority with the Ministry of Health behind it. The Welwyn Garden City Health Association was formed in very early days with the advice of no less an authority than Lord Dawson of Penn. The Health Association is a body created on lines similar to the Educational Association, and its work is administered by two committees. One deals with maternity child welfare and district nursing, and under its supervision and control there are child wel-

TO WELWYN, WITH WORKERS' HOMES LIKE THESE, FACTORIES LIKE THESE ARE ATTRACTED

fare, ante-natal, massage and dental clinics, and health visitors, district and school nurses and midwives are employed. The Hospital Committee operates the local hospital and an eye clinic and a nursing home.

The interest in health matters shown by residents in Welwyn Garden City is illustrated by the fact that there are 2,750 subscribers to the Health Association. This includes 2,000 persons who subscribe to the Association and Hospital through the Central Civic Fund industrial scheme. The Health Association works in the closest co-operation with the Urban District Council and the official Medical Officer of Health and the Sanitary Inspector of the locality. That the system has proved to be well founded may be indicated by one official figure. The infantile mortality rate for England and Wales in 1935 was 57 per 1,000 live births; at Welwyn Garden City, 35.

The Central Civic Fund was started in 1927 and was sponsored by the Rotary Club, under the influence of J. W. Bryce, who was at that time Managing Director of Shredded Wheat, Ltd. The idea was based on that of the Community Chests, the value of which system Mr. Bryce had discovered in the United States. The purpose of the fund is to facilitate the raising of money for the voluntary organizations in the town which exist for general social welfare and not on a sectarian or partisan basis. The fund supports the Hospital, District Nursing, Infant Welfare, Home-Help, Red Cross, School Development, The Library, Adult Education, The Guild of Help, and the St. John's Ambulance Brigade. The fund is administered by the Urban District Council, the Chamber of Commerce, the local trade unions and the participating bodies. There are also co-opted members representing business and finance. There are 2,630 subscribers, and 37 firms in the Town support the scheme.

Welwyn is no longer in the experimental stage. It is recognized by industrialists as one of the most advantageous locations for industry in the country. The total population of England and Wales in 1931 was approximately 40,000,000. Of these about half live within 100 miles of Welwyn, constituting an extraordinary concentration of purchasing power. The supply of labor presents little difficulty. Population follows the availability of work. Industrialists are every day becoming more alive to the conditions under which their employees live. They appreciate the value of the health and contentment which good housing and advantageous living conditions produce. The operatives at Welwyn live within walking distance of their work and are saved the fatigue and wear and tear of long train or bus journeys. The children are raised in conditions which are calculated to turn them into healthy, satisfied men and women. No one has appreciated these aspects more than the American firms that have established their factories in Welwyn.

There would therefore appear today to be no reason why the development of the town should not fully justify the faith of its original promoters. Thanks to the genius of its Architect, Louis de Soissons, who has been responsible for the layout and the control of the architectural treatment since 1920, Welwyn is becoming a very lovely place in its maturity. Its main avenues present vistas of great beauty in the spring and summer months. The thousands of trees which have been planted on each side of the streets are now reaching an age when they add greatly to the attractiveness of the town. The surrounding country is easily accessible and is exceptionally attractive. The industrial area, well planned and concentrated in appropriate zones, does not detract but rather adds interest to the whole, and it can scarcely be doubted that, as time passes, Welwyn will become more and more appreciated by industrialists who have the interest of their people at heart.

Public Housing and Taxes

Comments on the Discussion of This Subject Published on Pages 93-97 of the April Number

To the Editor of The American City:

I have read with much interest the article on public housing and taxes by Howard A. Gray in the April issue and your editorial comment thereon. The latter I think most important.

It is the underlying land that acts as a mirror in reflecting the value of the community services conferred or which the community stands ready to confer upon those who occupy such lands. Until our thinking is clarified on this point, all proposals for the alleviation of poor housing conditions and for slum clearance schemes will be confused by an endless array of suggestions involving subsidies of one kind or other.

Mr. Gray's thoughtful article indicates many of the difficulties of which I speak. As Lawson Purdy has so often pointed out, it is not possible to say of any one low-grade district in a community that it costs so much to provide the services to it and that it yields only so much in taxes, and that the difference between the two represents a subsidy to the occupants of such a district. Their buying power, meager as it may be, nevertheless is part of the underlying market which sustains the values in the business sections of the city, and without which the owners and employees of such businesses could not afford to live in other houses in other districts which contribute more in taxes to the municipalities than they demand in services.

These relationships are so intricate and so interwoven one with another that hasty generalizations are dangerous and misleading.

There is one other point in Mr. Gray's article that seems to me to deserve comment. Most students of the problem agree that local authorities should be prohibited from accepting a person as a tenant who can afford to live in safe, sanitary and uncongested and privately owned housing.

Let us assume for a moment that a wage of $25 per week, or a total of $1,300 per annum, is established as the yardstick for measuring the independence of a family of two adults and two children. If we say that below such income level such a family is eligible for occupancy of public housing and above such level such a family would be ineligible, immediately we have a thousand borderline cases. In every case of subsidy there is involved the choice between who is to receive it and who is not. No matter on what basis that choice is made, there is bound to develop a rankling feeling of injustice on the part of those just above such margin. This is true no matter at what level the line is drawn. For these reasons I, in common with most other persons who have tried to think through this question of subsidies, abhor them and view them as a last resort, a confession of failure.

It is my belief that a recognition of the difference in the impact of taxes upon land on the one hand and buildings upon the other, as suggested in your excellent editorial comment, may open up solutions of this housing problem which, as you well say, "would reduce or eliminate the need for subsidies," and avoid the difficulty which otherwise is inherent in subsidy, of choosing between those who are to receive it and those who are not.

Justice is a difficult thing to attain but arbitrary short cuts in the way of selecting beneficiaries of special privileges to my mind do not offer a permanent solution of the problem. At best they are expedients which once adopted are apt to develop difficult and embarrassing situations in their turn.

Wayne D. Heydecker.

Albany, N. Y.

To the Editor of The American City:

While Howard A. Gray, Director of Housing Division, Public Works Administration, in his article on "Public Housing and Taxes", lists Ohio as one of the 15 states legally exempting Federal housing, this law will probably be tested as to its constitutionality.

The Housing Director says: "There is one potential obstacle capable of hamstringing the whole program. This is the matter of taxes. Shall public housing projects pay ad valorem taxes?" This means, I suppose, that the payment of such taxes would prove the housing projects uneconomic. But taxes will prove to be only one of many burdensome factors. Like municipal ownership and operation of light, heat, water and other facilities, the question of excessive cost of land, of excessive cost of improvement, of the proper planning of the improvement, of the selection of a proper site, of the cost of money, of the efficiency of management, of the cost of repairs and maintenance, of the selection of tenants, and other fundamental costs and carrying charges are involved, each of which will make or break the economic aspects, perhaps more so than will taxes.

The Director concludes that the maximum contribution should probably not exceed 5 per cent of the gross revenue (about one-fifth of contribution of non-exempt competitive property). But what *actual* rate of contribution should be imposed, assuming such an assessment basis were legal? "It is clear," he says, "that the sums collected from a public slum clearing and housing project must be based upon the rent-paying ability of its tenants." Who is to decide this rent-paying ability? Who is able to determine such ability? What formula would he suggest? Will it be administered by partisan, untrained managers under the political spoils system, or experienced managers under civil service? When the ability of the tenant to pay rent increases, decreases or ceases, will the rent be adjusted accordingly? Will the use of such property in Cleveland, e. g., be denied to tens of thousands of indigents, old-age pensionnaires, or WPA workers, who are mostly in need of low-cost houses, in most cases not able to pay rent at all? Cleveland now pays the rent for probably 25,000 indigent families. I should not want, indeed I am not qualified, to determine rent-paying ability which must so largely be measured by the probable income to be realized by the lessees after the letting.

To make these projects successful, let us charge off the investment to profit and loss, and hope that we may derive sufficient managing, operating and tax costs without further loss. The slum clearance and housing facilities may be social necessity. That they are an economic loss seems to be admitted.

Capacity of occupant to pay taxes, urged by the Director, is a very inadequate basis for contribution in most cases. Probably one-half of the total value of a large city's duplicate consists of utility, transportation, commercial, apartment and industrial buildings. In most of these cases the capacity of the occupants to pay taxes cannot be accepted as the sole measure of fixing their contribution. And of course it would be inapplicable to the 100,000 vacant parcels of Cuyahoga County.

John A. Zangerle,

Auditor of Cuyahoga County, Ohio, President, National Association of Assessing Officers

Other comments on Mr. Gray's article, received too late for publication this month, will appear in the June issue.

Greater City Trade Through Better Roads

Prepared from a Radio Interview with E. R. Galvin, General Sales Manager, Caterpillar Tractor Company

THERE are three general classes of roads: first, the primary roads, consisting of the main arteries of transportation, that is, the U. S. highways and main state highways; second, the secondary roads or main county roads; and, third, the farm-to-market roads. The primary roads are principally concrete or oil-surfaced roads; the secondary roads are concrete, asphalt, macadam, gravel or oil-mix roads; the farm-to-market roads are dirt roads improved to such an extent that they can be traveled throughout the year; in other words, they are all-weather roads.

It has been found in dealing with farmers that the term "farm-to-market roads" is rather confusing. So they have been renamed "farm service roads," a term which really means something to the farmer. These farm service roads must be well graded, well drained and economically surfaced, easily maintained and open for travel and hauling the year round.

The U. S. Bureau of Public Roads and the state, city, county and township governments have handled the road situation in a marvelous manner. Of course, no one could foresee the rapid expansion in the use of automobiles and motor trucks, nor was the money available to improve in a short time all the 3,000,000 miles of roads in this country. Of this mileage, about 2,000,000 miles are not improved, and the American Farm Bureau Federation estimates that 4,000,000 families, or 16,000,000 people, reside on farms located on roads unimproved.

The improved or farm service road eliminates isolation and makes the farm a better place on which to live. Next, it will increase farm income by making it possible for the farmer to get his grain, vegetables and live stock to market when prices are best. The farm service road eliminates market glut, or the rush of products to market after periods of impassable roads. Market glut annually costs the farmers of America millions of dollars. Again, medical service to the farm, as well as attendance at schools and churches, and neighbor contacts, are improved, as are many other phases.

Costs

The basis of any improved road is proper grade and drainage. A good job of grading and draining an unimproved road in Kansas under most conditions would cost from $1,000 to $1,500 per mile. If gravel is close at hand, it is probably the cheapest type of road surface. With Kansas prominent in the petroleum industry, and

THE DELEGATION WHICH WELCOMED E. R. GALVIN TO WICHITA, KANS., FOR HIS FARM-SERVICE-ROAD BROADCAST FROM STATION KANS

The welcoming delegation was headed by Mayor Robert E. Israel of Wichita. Left to right, N. R. Morgan, Vice-President of the G. C. Dunn Tractor Co.; O. Q. Hinds, General Sales Representative; W. Ellzey Brown, Sales Promotion Manager; C. W. Waddington, Chamber of Commerce; R. E. Cowen, Chamber of Commerce; B. Wise, Chamber of Commerce; Charles A. Spears, General Sales Representative; Warren E. Blazier, Chairman of the Industrial Commission of the Chamber of Commerce; L. B. Neumiller, Manager of the Central Sales Division; Ben Hegler, Chamber of Commerce; Mayor Israel; E. R. Galvin, General Sales Manager, Caterpillar Tractor Co., and Marsh Murdock, Editor of the *Wichita Eagle*

with refineries located at various points in the state, it is in a favorable position as far as road oil surfacing is concerned. In a period of one year it is possible to maintain 25 miles of farm service roads for less than the cost of maintaining one mile of dirt roads not improved. It costs much less to systematically maintain a well-graded, well-drained, surfaced road than it costs to maintain a dirt road. Machinery costs are less, the operating costs of this machinery are lower, and these savings can be easily translated into many more miles of road maintained for the same money.

The diesel engine has revolutionized the entire road-machinery industry. The reduction in road construction and maintenance costs with modern machinery, solely possible because of the operating economy of the diesel engine, is giving the taxpayer almost double the mileage of newer improved roads as compared with the machinery used five years ago. Here is a saving of millions annually to taxpayers, savings which in many cases are expended in providing increased mileage of improved roads.

The diesel engine has cut fuel costs 60 to 80 per cent. Diesel fuel is low-cost fuel averaging from 7 to 8 cents a gallon for the country at large. Because of this low fuel consumption of diesel engines, it has been possible to build machines of greater capacity and still keep fuel costs within acceptable limits. Present-day machines do far more work for much less money than ever before in the history of the industry.

Mr. Galvin concluded his radio broadcast by saying: "Today the Federal Government is farm-service-road-minded, and important appropriations will no doubt set aside money for such roads. The U. S. Bureau of Public Roads will probably administer the expenditures of such moneys, working in conjunction with the various state highway departments. The highway departments in turn will work with the counties within the state in planning and carrying out a coordinated road system. The chamber of commerce in each county-seat, working with the county commissioners, is in a position to lend valuable counsel, to the end that proper surveys will be made, and the highway system will be planned and executed on the most practical basis."

A Ravished River Glimpses Glory

The Merrimac River Had a Few Months of Fish Life— Then Pollution Took Its Toll

By ARTHUR L. SHAW
Of Metcalf & Eddy, Engineers, Boston, Mass.

AN interesting example of the rapidity with which a stream, given a chance to cleanse itself, will resume the appearance of respectability and re-establish its congeniality towards fish life became apparent in the Merrimac River in the summer of 1936. Unfortunately, however, this same river soon afterwards gave a striking demonstration of how quickly a polluted stream can lose its attraction for aquatic life.

In the 20-odd miles below the city of Haverhill, Mass., the Merrimac River had long since lost its attractive appearance, except from a distance; and on its banks had accumulated the evidence of the deep deposits of mud resulting from the years of discharge of sewage and industrial wastes from the industrial cities of Haverhill, Lawrence, Lowell, Nashua, Manchester and Concord. For several years, however, the industrial activity of the Merrimac Valley has been greatly curtailed; many mills have been closed or dismantled; and population has stood still or diminished. Then came the unprecedented flood of March, 1936, which, as if to atone for its destruction of property, scoured out many of the old mud banks or covered them deeply with sand, so that clean, sandy shores in many places replaced the noisome mud that had so long been tolerated.

Not only did this transformation please the human beings who lived near or had occasion to pass along the river banks, giving them visions of the restoration of the pleasurable usage of the once beautiful tidal estuary from Haverhill to the sea, but also it met the approval of the fish, which promptly repossessed this stretch of water, so recently devoid of life except for the sea-gulls which found it productive of choice morsels of refuse. Thus, in the short time from spring to summer, the Merrimac River threw off the evidence of long years of abuse.

But the hope of permanent change was short-lived, for the natural cleansing of the flood could not endure while the causes of pollution remained. Industrial activity has resumed to some extent during the past year, and its wastes have again been added to the domestic sewage which pours into the river. Something happened one day in the fall of 1936. Either the capacity of the river had finally been exhausted, or some upstream industry had momentarily dumped a large quantity of poisonous wastes. In any event, the fresh, sandy shores of the river were suddenly strewn with the dead bodies of thousands of disillusioned fish, and opposite the mouths of small brooks flowing into the river could be seen dense masses of fish, headed inshore and struggling to get life-giving oxygen from the purer waters of the tributary streams, but doubtless doomed to join their recently deceased brothers on the beaches.

Here had been demonstrated the full cycle of river history from dire degradation to pristine purity and back, all in the short span of a few months. "So what?" you ask. Well, at least it shows that nature can, and given a chance will, give back the beauty of our rivers in a surprisingly short time; and, per contra, will have little patience with us if we do not reciprocate.

Decatur Has Made a Show-Place of the City Water Works

By WILLIAM H. HERRING

DECATUR is a thriving Illinois city of 60,000 inhabitants. It is situated in a rich agricultural district and is important as a manufacturing city and railroad center. The Decatur Water-Works Park and Aquariums constitute one of the city's chief show-places.

Decatur is one of the older cities of the state and was named for Commodore Stephen Decatur. It was Abraham Lincoln's first Illinois home. The city has long been known as a leader in many progressive improvements.

Here one of the country's greatest man-made lakes is to be seen, the first artificial lake of its kind constructed. It was created by damming the Sangamon River. Lake Shore Drive skirts the 35-mile shore line for a number of miles. Charming homes, quaint cottages and club-houses dot the hills among long and inviting stretches of natural, wild woodland.

The Decatur Water Works Park and Aquariums, recently completed, are very charming in plan and layout. This newest attraction is located about ten blocks from the center of the city and its two leading hotels. The park is readily accessible for visitors in cars and afoot.

The water-works plant is in a large tract of land adjacent to the Sangamon River and Lake Decatur. During many years the plant has been drawing admiration from visitors and local citizens, because of its construction and great efficiency, but until recently no efforts were made to beautify the extensive grounds. Finally, it was decided to do something about making the grounds so attractive and inviting that they would lure tourists in greater numbers, and at the same time cause the home folks to sit up, take notice and come out and enjoy the park.

A cleverly conceived cobblestone archway was erected as an entrance to the east end of the grounds. It can be observed in the lower left-hand corner of the illustration on this page. A concrete path of generous width winds among numerous pools to an exit near the west side of the grounds.

The pools are constructed of brick and concrete and are situated just south of the filter house, immediately below the dam. The largest pool measures 15 feet in diameter. There are nine smaller ones. In addition to these fish pools there is an artificial waterfall which is effectively illuminated by night. A fountain, with the figure of a woman holding an umbrella, is another feature, also illuminated at night. Adjacent to the plant is the municipal theater, in which entertainments and band concerts are held during the summer months. This open-air theater has been enlarged and improved. Shrubbery placed at many points has added greatly to the charm of the spot. Riprapping of the lake shore nearby also gives an attractive touch to the scene. A shallow concrete bedded stream flows from the base of the waterfall and follows a winding course through the plot. Miniature rustic bridges cross the stream at several points.

All pools are surrounded by an area of seeded or sodded

THE CIRCULAR FISH-POOLS AT THE DECATUR WATER WORKS

Photograph by courtesy of Mueller Co.

grass with shrubbery, trees and flowers on all sides. The pools and grounds were developed under the supervision of John L. Rehfelt, Commissioner of Public Property, by workmen who worked out their water bills, and by WPA workers. The plans followed suggestions which were advanced by David H. Thompson, of the Illinois National History Survey. The cost of landscaping and other work was approximately $4,000.

The native fish in the aquarium were brought from the Illinois River by Sam Parr, of the Conservation Department, after they had been seined by state officials in order to save them from extinction in drying ponds and sloughs. Public-spirited citizens, in particular Walter C. Ahlheim, President of the Paramount Baking Company, Decatur, Ill., have presented the aquarium with certain specimens of fish, alligators and even a rare leatherneck turtle.

What Decatur has accomplished in connection with this project can be done in other cities, thereby making them more interesting to the home folks and attractive to outsiders.

The Well-Water System of South Gate, Calif., Balances Load with Elevated Tanks

SOUTH GATE, a southern California city of about 20,000 population, secures its water supply from eight 12-inch wells varying in depth from 957 to 1,334 feet. The water from each well is delivered directly into the mains by a well pump controlled by a pressure switch on the mains. The 150 miles of distribution system in the city consist of cast iron Class-150 pipe varying from 6 inches to 16 inches in diameter. Most of the wells are located in the southern part of the city, where a 150,000-gallon elevated tank was erected several years ago to maintain a uniform pressure. The pressure and volume in the northern end of the city, which has an area of 7 square miles, was not good, so late last year a new 150,000-gallon tank was erected in that section, greatly improving the pressure and volume.

The Wells

Well No. 2 has a depth of 680 feet and a 12-inch casing, and is pumped with a 700-gpm unit; No. 3 is of the same depth, and has a 12-inch casing and a 500-gpm pump; No. 4 is 1,334 feet in depth, and has a 16-inch casing and a 500-gpm pump; No. 5 is 1,015 feet deep, and has a 12-inch casing and a 1,000-gpm pump; No. 7 is 883 feet deep, and has a 16-inch casing and a 1,000-gpm pump; No. 8, at the site of the first elevated steel tank, is 764 feet deep, and has a 12-inch casing and a 1,000-gpm pump; No. 9 is 813 feet deep, and has a 12-inch casing and a 1,000-gpm pump; No. 10 is 597 feet deep, and has a 16-inch and a 12-inch casing and an 800-gpm pump. The pumps are all electric-driven, the city paying one cent per kilowatt for power.

THE NEW 150,000-GALLON ELEVATED STEEL TANK WHICH DOUBLES THE STORAGE CAPACITY AT SOUTH GATE, CALIF.

Service and Consumption Data

The average daily consumption is about 14 mgd, and the maximum 18 mgd, with a minimum consumption running as low as 10 mgd. There are 3,600 services, of which 12 are large industrial users. The average capita consumption is about 500 gallons per day, owing to the industrial consumption.

The city has a Class 6 insurance rating close to Class 5. The pressure at the pumps varies between 55 and 62 pounds, at the southwesterly end of the distribution system between 65 and 68 pounds, and at the northwesterly end between 48 and 50 pounds. The pressure is not raised for fire service. There are 625 fire hydrants in the system.

L. M. Rothkranz is Superintendent of Water Works for South Gate. Both of the 150,000-gallon elevated tanks erected in South Gate were furnished by the Chicago Bridge & Iron Works.

Another European Housing and Planning Tour

In addition to the tour of European housing sponsored by the National Public Housing Conference mentioned in THE AMERICAN CITY last month, a "Pocono Study Tour" of European housing and city planning will be conducted later in the summer by Dr. Carol Aronovici and Dr. Dorothy Schaffter. Dr. Aronovici has long been a student and teacher of housing, and Dr. Schaffter is well fitted to analyze the relevant legal and administrative problems, with her background as a political scientist. Between July 28 and September 14, the group will visit leading municipalities in England, Norway, Sweden, Holland, Belgium and France, making a careful study of their financing, planning and management methods in the field of housing, with the aid of local interpretation by executive officers and experts. An effort will be made to afford academic credit for this tour. For further information inquire at Pocono Study Tours, 545 Fifth Ave., New York.

New Pools in 750 Municipalities Beckon Citizens

WITH summer just around the corner, authorities in 750 cities and towns of the United States are making ready to open for the season more than 1,000 swimming pools constructed or improved for them by the Works Progress Administration and this agency's predecessors in the Federal works program. CWA built more than 200 pools; PWA, 351 new pools and improved 226 old pools; WPA, 248 new and 61 old. These figures do not take into consideration the many projects that are now in process of construction and will soon be available for use.

Probably no single phase of the relief labor program has received more hearty cooperation throughout the entire country than the swimming-pool projects. Petitions signed by residents, personal appeals to relief administration officials, hundreds of editorials in newspapers suggesting the advantages of pools, all show the intense interest that the public has in this activity.

Fitting Pool to Population

In response to this widespread interest, the WPA has attempted to bring accommodations within the reach of all. The work has not been confined to the construction of any one type of pool. In Massachusetts, with its long coast line of public beaches and community bath-houses, extensive work is being done to improve natural facilities. In New Hampshire, dotted with its myriads of beautiful lakes, improvements to beaches and lake shores have been supplemented by work on boat landings, wharves, and other places used by summer bathers.

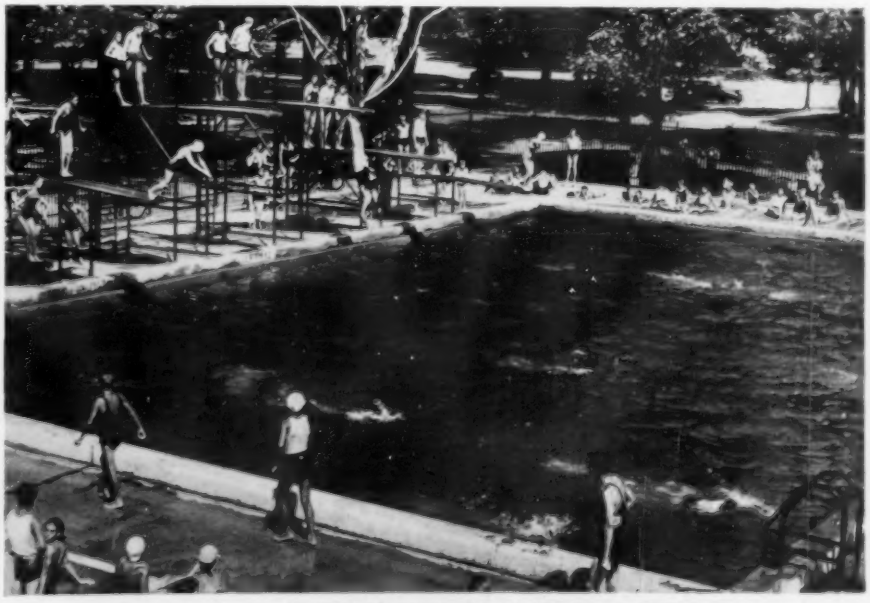
The program has extended to slum areas. In New York City the building of the $1,500,000 Astoria Pool insures accommodation for 6,000 bathers at one time. This pool is the "daddy" of all Uncle Sam's projects of this type. It is constructed at the base of a large circular amphitheater and has a surface area of 67,500 square feet. At the end of the main pool are two smaller ones used for wading and high diving. The latter was the scene of the 1936 Olympic tryouts. It is 16 feet deep and equipped with a regulation Olympic diving tower 35 feet high. It is estimated that over a million people used this pool during the first season.

IN OLD NEW ORLEANS

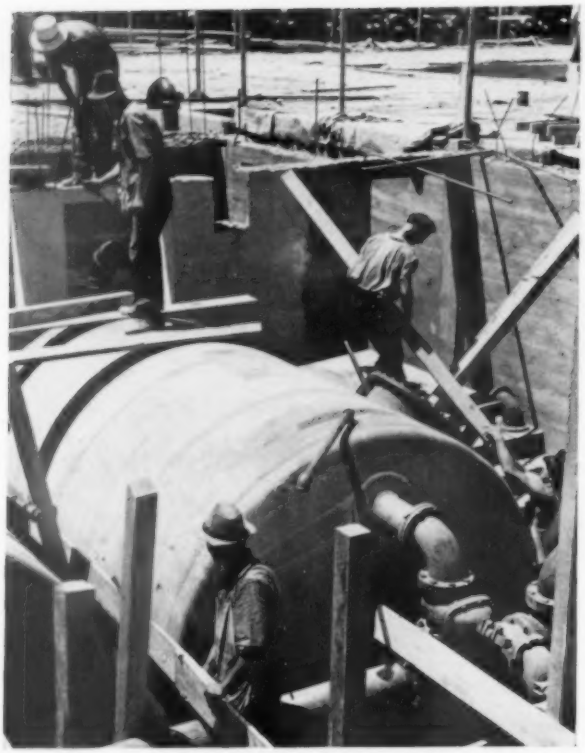
Salida, Colo., now has a natural warm mineral-water pool, to which the water is piped 5 miles from Pancha Hot Springs, arriving at a mean temperature of 90 degrees. A unique feature of this pool is an underground passageway entirely surrounding the pool, whereby repairs may be made without new excavations.

At Washington, Ind., the nearest pool was located near Vincennes, 22 miles away, until a pool 75 x 150 feet, accommodating nearly 2,000 people, was recently provided.

In Los Angeles the huge Glendale Park recreational center is being completed with a swimming pool that will ac-



AT BUFFALO, N. Y., WHOSE PROGRAM CONSIDERS CONSTRUCTING POOLS IN DELAWARE, CENTENNIAL AND SCHILLER PARKS, REES STREET, AND THE KENSINGTON DISTRICT, AT $150,000 EACH



INSTALLING THREE 8 X 14-FOOT GRAVER FILTERS AT CLAYTON MUNICIPAL SWIMMING POOL, ST. LOUIS, MO.
Clean water is the principal charm of a swimming pool

commodate over 1,000 bathers. It is equipped with up-to-date chlorinating machinery. In addition to the pool, there will be an auditorium 90 x 150 feet with modern stage and assembly room, and landscaped grounds.

Great Falls, Mont.; Williamson, W. Va.; De Kalb, Ill.; Frostburg, Md.; Marysville, Ohio; Norwood, Mass.; Navasota, Texas; Osceola, Mo.; Gladbrooke, Iowa; these are only a few of the municipalities that now have modern pools where their citizens may find exercise and pleasant relaxation—whether there are only a thousand citizens as at Osceola, or 29 thousand as at Great Falls.

All the Pleasures of Bathing

One of the most pleasant features of all these new pools is their modern service installations, to provide for the comfort and safety of the bathers. Some of them have ultra-modern submarine lighting devices, all kinds of aquatic recreational equipment, such as slides, swings, and surf-boards that are carried to elevated platforms and placed on a track that extends downward to the water, together with many extra facilities which make the visit to the pool more enjoyable. For those who need swimming instruction before they are ready for complete enjoyment of these facilities, many pools retain expert instructors who conduct mass classes for beginners, and tutor individuals.

The swim-pool program has aided the college program by making standard facilities available to many schools heretofore unable to compete because of lack of adequate accommodations. Many colleges and universities plan to enter full teams in conference meets this next year owing to newly acquired accommodations, or those built for municipal purposes close by, which may be used for team training and to stage competitive meets.

Pools Save Lives

In 1933 the number of accidental drownings in the United States was listed at 7,326 by the Vital Statistics Section of the U. S. Department of Commerce, Washington, D. C., and this number increased to 7,365 in 1934. Swift-moving streams, treacherous whirlpools, and abandoned levee pits that formerly counted their victims by the score, are being discarded for the convenient and sanitary public resorts. Current opinion, as expressed in different newspaper articles, is that swimming fatalities will be materially reduced in future. Much credit is given to the new and adequately supervised public pools, where drownings are practically unknown owing to constant surveillance by trained guards.

The First City

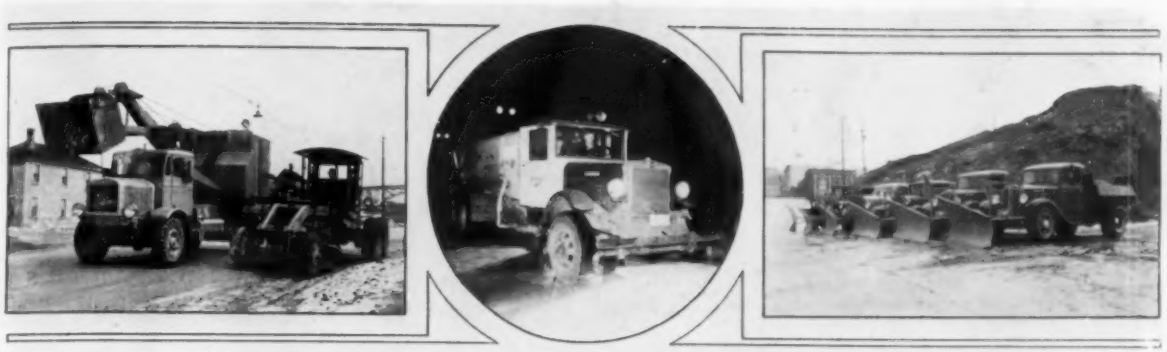
An Editorial from the *New York Times* of April 2, 1937

THOSE who had the privilege of attending the annual dinner of the American Institute for Persian Art and Archaeology on Wednesday night must have felt that they were for the moment inhabitants of the first of cities, sharing the archaeologist's thrill over the emergence of civilization. On the authority of Mr. Arthur Upham Pope, the Director of the Institute, it is now possible to give an answer to the "most momentous" of questions (second to the Creation itself) as to "when, where and how" civilization emerged. The answer is "somewhere in Iran," between 8,000 and 5,000 B. C. More specifically:

"It is clearly in Iran that we must look for the beginning of city life, that organization of humanity into differentiated groups with the ability for coordinated action for labor and defense, with division of labor and increasing wealth permitting of leisure and the growth of art and ideas."

And still more specifically, the oldest city, whose discovery has just been announced, is almost at the foothills of the Iranian range. Back of the earliest civilization of Mesopotamia was that which flowered in the Iranian plateau. The urban civilization of the Indus valley also had its origin in this same region where man first came into his own as a human being, learning agriculture and metallurgy. Utensils were invented for the cultivation of the wild wheat for food, and migrants with their potteries and other arts swept out in every direction from Persia, which now covets its earlier name, Iran.

We have a new perspective for human life, and especially urban life, and ask ourselves in this sight of the foundations builded millennials ago what will be the future of our earthly urbanized human life, whose apocalyptic vision is of an eternal celestial city.



MACHINES WHICH ATTACK AND ROUT THE STREET-CLEANING PROBLEM IN SEATTLE, WASH.
Left—A Bay City ¾-yard shovel with a 1¼-yard snow-bucket mounted on an F.W.D. truck, and a patrol grader that hustles slush snow out of the way. Center—A flusher on night duty. Right—The battery of snow-plows that are ready for the infrequent winters when there is snow in Seattle

Street Cleaning — A Necessary Feature of Street Maintenance

"Cleanliness and Health" Is Seattle's Motto, Which the Taxpayers Back Up with an Adequate Budget Item

By FRANK J. LAUBE
Member of the Seattle City Council; formerly of the Faculty of the University of Washington

JUST as Roman roads were a spectacular feature of the ancient world, so one of the most spectacular features of the modern city in the past few decades has been the progress in the development of street-paving construction. A continuing incident of paved streets is, in municipal housekeeping, the cleansing process.

Seattle residents have a well-developed "keep the streets clean" consciousness. The immediate and direct effect of this attitude of mind has been the annual insertion in the budget of an adequate street maintenance item. A magic item it is, for it calls into being the personnel, organization and equipment to enable the shining pavements to greet their patrons each morning with well-scrubbed faces. *It means cleanliness and health.*

The Problem

Seattle has a population of 365,583 in an area of 68.5 square miles. There are 815.13 miles of permanent pavement, of which 524.73 miles are concrete, 200.02 miles asphalt, 67.27 miles brick, 18.88 block stone, and 1.29 miles wood block. There are 3.36 miles of trestles and bridge approaches. This pavement development represents a cost of $36,768,093.60. The problem of cleaning is not only one of usableness, comfort and health, but also of the protection of the street from deterioration.

Street cleaning is conditioned absolutely, of course, upon street paving. The policy in Seattle has been to develop the lowest-cost system adequate to the conditions presented and consistent with a reasonably high degree of effectiveness. With this in mind, the engineers have tried to work out a constructive maintenance program checked by constant expert observation.

Methods

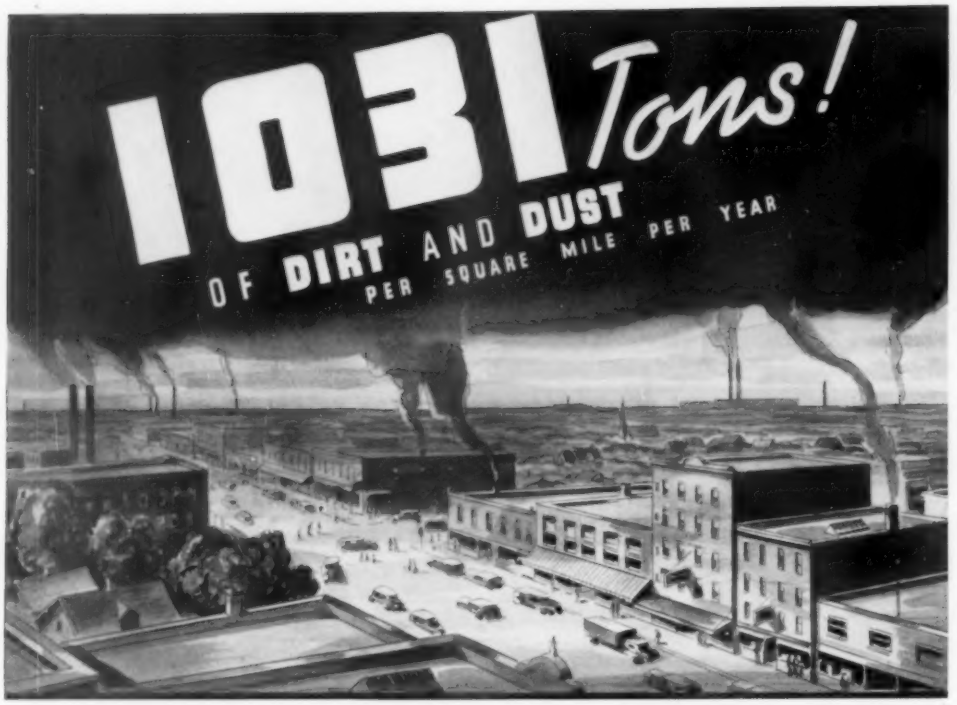
Seattle does no machine sweeping and very little hand sweeping. The cleaning is done almost wholly by pressure flushers and the running of gutters by small trucks, each serviced by two laborers.

The modern pressure flusher sends all waste to the gutter. Pressure flushing not only does this work thoroughly, but at the same time assures the removal of the fine dirt, which when dry is dust, together with the bacteria contained in it. Dust is the most objectionable part of street refuse, for it enters houses and settles on floors and furniture and upon goods in stores. A well-flushed city is a clean city. Research in both America and Europe indicates a reduction of approximately 65 per cent in the bacterial count of street dust where the flusher system is used.

The catch-basins in Seattle are cleaned by gas-powered Eductors, which draw the material directly from the basin to the truck. This is supplemented by the use of spoon cleaning of all catch-basins throughout the outlying districts of the city.

The Citizen Helps

Much of the rubbish of streets originates on the sidewalks. To reduce the littering of the streets, 300 square trash cans with swing hinge tops are placed at corners. This service has heretofore used inside containers made of canvas, the contents of which are emptied into the trucks, and the bags returned to the can. The bags have not proved sufficiently durable and are unsatisfactory because of the amount of garbage which finds its way into the cans,



"That's A Lot of DIRT In Any Man's TOWN."

Imagine . . . more than a THOUSAND TONS of DUST falling annually upon streets. Read reports from U. S. Public Health Service. Cities must fight the health-menace of "FINE, SWIRLING DUST" . . . by having streets WASHED spotlessly clean . . . using WATER "nature's greatest cleanser"; flushed by a modern Etnyre Street Flusher.

Flushing WASHES ALL THE DIRT AWAY!

• Every city can have clean, sanitary streets . . . at lowest possible cost . . . by "washing all the dirt away" with modern, motorized street FLUSHERS. Not only the heavy debris, but the gigantic accumulation of "*fine dust*", *that* "*blows and swirls*" . . . that raises havoc with pedestrians, endangers traffic, sifts into stores, offices and windows . . . and makes life miserable for housewives in homes. FLUSHERS *wash* streets "spotlessly clean," removing ALL the dirt. Also flushers clean UNDER PARKED AUTOMOBILES (a big problem by any other street cleaning method). Investigate the NEW ETNYRE FLUSHERS NOW. Write for Catalog No. 304 for complete information. E. D. ETNYRE & CO., Oregon, Ill.

Etnyre

An Etnyre Flusher in action . . . using only 2 of 3 nozzles. Etnyre Power-Pressure Flushers will clean streets up to 50 feet wide in ONE trip . . . "flushing ALL the dirt away."

and they are now being replaced by easily removable steel containers.

The trash cans are kept well painted in red. On the top in white letters are the words "Waste Material," and on the sides a short appeal to the pride of the citizen and an invitation to cooperate.

Organization and Personnel

The cleaning of the streets is organized under the Street Maintenance Division of the Engineer's Department. The personnel consists of a general maintenance engineer, designated Assistant Superintendent of Maintenance, two general foremen, a foreman of the north district, a foreman of the south district, and a foreman for night service. Directly under these last three foremen are the flusher men, the truck men, the pick-up men, and the laborers. The inspectors report to the foremen and to the Assistant Superintendent, but are directly and wholly responsible to the Assistant Superintendent of Maintenance, and through him to the City Engineer.

The entire personnel has civil service status, permanent tenure, and retirement pension provision.

All cleaning is done on regularly established routes. As the accompanying chart indicates, the work is carried on under a combination—a geographic and functional set-up with all activity coordinated under a single, responsible head, aided by an inspection corps. Experience has indicated the desirability of having a clear definition of responsibility, a concentration of supervision, and an easily expansible organization to meet changing and emergency requirements.

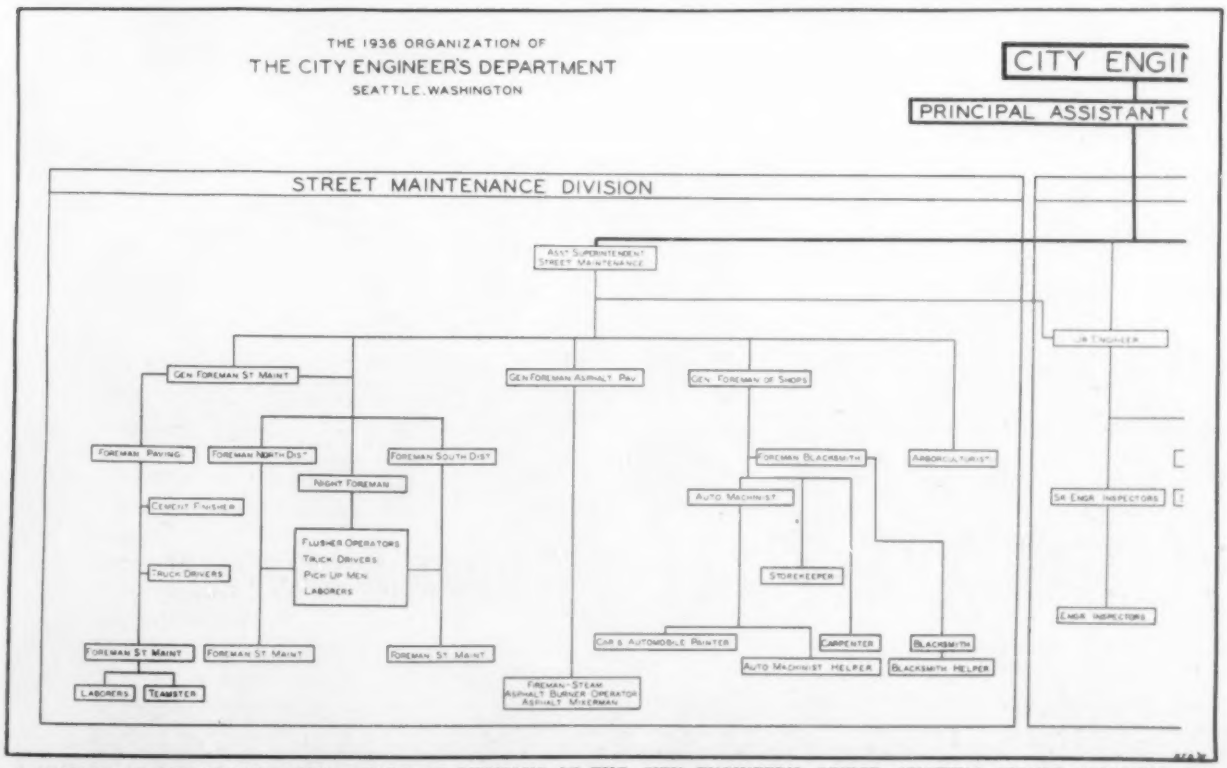
The cleaning of alleys has been a special problem. Any alley is apt to be a catch-all for rubbish and waste. From the standpoint of health, the alley requires as much attention as the street. The work of cleaning is accomplished by twice-a-week trips in the downtown section, and fewer in other areas. A small flusher with the front shoe only in operation, cooperates with pick-up men. The work is coordinated with the cleaning of the adjacent streets.

Snow Removal

Seattle winters are comparatively mild. The temperature seldom goes below 40° F. in winter, nor above 80° F. in summer. We cannot be unprepared, however, for an occasional cold winter brings the problem of snow removal. This last winter we have had several heavy snowstorms. The aim of the cleaning service is quick, low-cost removal with a minimum of interference with traffic.

In a heavy snowfall the snow is run into windrows with snow-plows and scrapers. It is then lifted into trucks by means of steel snow-buckets attached to Bay City gas shovel equipment mounted on F.W.D. trucks. The equipment is supplied with a ¼-yard excavating shovel which was included in the original purchase. Subsequently we manufactured at our own shops a mud-bucket with a capacity of ½-yard at a cost of $109.76. Then we manufactured in our own shops a snow-bucket of 1¼-yard capacity at a cost of $146.52. The 1¼-yard buckets remove snow at the rate of 81.9 cubic yards per machine per hour.

Two of the snow-plows are attached to International trucks, one to a Dodge truck, and three to a Ford truck. The plows were manufactured in our own shops at an expense of $60 each. They are made by cutting in twain a



A SECTION OF THE ORGANIZATION CHART OF DIVISIONS OF THE CITY ENGINEER'S OFFICE, SHOWING STREET CLEANING AND CORRELATED SERVICES

FIRST SHOWING of the New INTERNATIONALS

International Harvester presents a great new line of trucks—a major news story for the transportation world—a personal news item for every user of trucks!

HERE is the first announcement of the new International Trucks in the gleaming metal dress of today and tomorrow. Here are *eye-values* that tell their own story, ultramodern styling to please every owner and driver, your customers and the general public. But eye-values are not the whole story; more important, in these new trucks, are *new values underneath the surface.*

Consistent International policy, adhered to through more than 30 years of ALL-TRUCK manufacture, is your guarantee that an entirely new beauty of exterior in International Trucks brings also *advanced engineering throughout the mechanical product.*

New standards of utility and performance are offered you in every model of this new line, in sizes ranging from the Half-Ton unit up to powerful Six-Wheelers. The new International Trucks are at your service, on display at International dealer and branch showrooms. Folders describing sizes and styles used in your own hauling work will be sent on request.

INTERNATIONAL HARVESTER COMPANY
606 S. Michigan Ave. (INCORPORATED) Chicago, Illinois

INTERNATIONAL TRUCKS

piece of rounded steel No. 8 gage and 42 inches in diameter. This section of steel is an exact half-cylinder. The diagonal cut divides the section into two complete snowplows. The length of the steel section is 10 feet, which of course provides that each plow shall be 10 feet in length. We have devised a safety pin which shears when the plow strikes any immovable object, such as a traffic button. The size of the shearing pin for all ordinary operations on our city streets is 5/16-inch. These plows are easily mounted and dismounted.

Snow removal must be planned ahead, with definite pre-assignment of equipment and personnel. We use the street-cleaning organization with whatever labor additions are necessary.

Budget items anticipate possible emergency.

Leaf Removal

This is an annual two-months problem. Leaves are removed by pick-up trucks and labor crews. To reduce cost and increase speed and effectiveness, the city purchased a mechanical, revolving, two-direction fiber broom carried on a truck. In taking away the leaves, the parking strips are also cleaned, and if the householder has swept the leaves from his lawn and sidewalk onto the parking strip, these are also carried away.

The Arboriculturist

Climatic conditions in Seattle are favorable to the rapid growth of trees and evergreens. Tree roots, leaves, branches and trimmings add to the problem of both maintenance and cleaning. The city engineer is responsible for all street area to the property line. This gives him jurisdiction over sidewalks and parking strips. To aid in the solution of problems growing out of parking-strip planting, the services of a trained arboriculturist are employed. He has civil service status and is on full time, with permanent tenure and retirement pension rights. He acts largely in an advisory capacity, but also has considerable control over the variety of planting, sidewalk interference and corner growth. This aids not only in increasing the symmetry and beauty of parking-strip planting and in protecting the clearance of view at corners, but also in protection of the pavement structure and in its cleanliness.

Equipment

The equipment consists of one motorized sweeper for leaves and snow only; five 1,200-gallon flushers; one 2,150-gallon flusher; thirteen light trucks (2-cubic-yard and 2-cubic-yard side board); heavy trucks as assigned.

The flusher tanks and pumping equipment are mounted on three Kenworth trucks, one Sterling truck, and one Pierce Arrow truck. The large 21,500-gallon tank is mounted on a Kenworth truck. All the tanks were manufactured in our own shops. The pumps are standard flushing equipment purchased on the open market.

Each flusher is filled an average of 35 times a day. The water is drawn from the fire hydrants at negligible cost. A water item of $50,000 to cover all water used for municipal purposes is budgeted each year for payment to the municipal Water Department. Of this amount, only $1,000 is assigned to street cleaning, which is merely a nominal sum. About 300,000 gallons a day is used for this purpose. In addition to this amount, several million gallons of water is thrown into the sewers each day by periodic, automatic flushers directly connected with the water mains. A gravity-flow water system bringing water from Cedar River gives an almost unlimited supply.

The parking of automobiles in the evening has presented some difficulty in night flushing. To obviate the enforced delay in night flushing, the fire hydrants are opened at 10:30 and allowed to run to clear the gutters. The flushers begin operations at 11:30.

The street dirt is run to the crossings, where, by blocking and piling, the water is allowed to drain into the basins. The pick-up trucks immediately remove the dirt.

The making of fills has been much criticized, and some engineers think it an undesirable means of disposal. Seattle's experience has been favorable to fills, and this city has always disposed of garbage and waste in the making of fills. It is spread, chemically treated, and covered with several inches of dirt. Much desirable ground has been "made" in this way.

Costs

The following cost data are given for whatever value they may possess. Cost data with respect to street cleaning are, in general, unsatisfactory. Variations in local conditions make comparisons inaccurate.

The total cost of street cleaning in Seattle for 1935 was $154,284.78. This makes the per capita cost approximately 42 cents per annum. Of the cost, $94,023.78, or 62 per cent of the total, was for labor.

In this total cost the following were some of the elements:

The daytime flushing amounted to a total for the year of 189,964,685 square yards. This cost $15,673.93, or 8.25 cents per 1,000 square yards. In the day flushing, the labor cost was 24 per cent, the truck cost 76 per cent.

The night flushing covered a total of 45,180,472 square yards. This cost $7,895.80, or 18.3 cents per 1,000 square yards. The labor cost of night flushing was 36 per cent, and the truck cost 64 per cent.

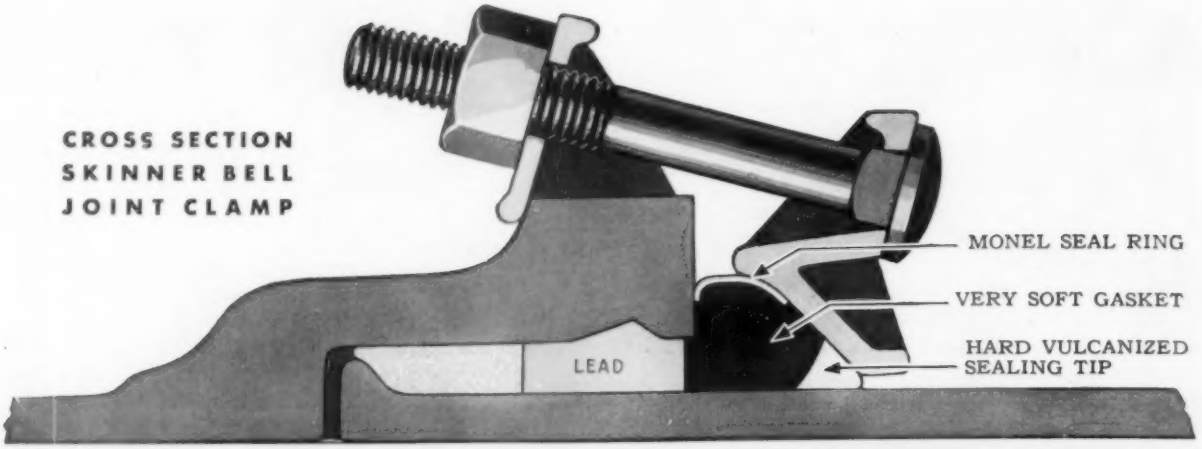
The cost of cleaning the total mileage of gutters for the year was 91,678.54. The data are such that any unit cost analysis would be of little value. The monthly payroll varied from $3,551.86 in January to $5,583.12 in March, with the months from August through December uniform at close to $5,300 per month. Of the total cost, 65 per cent was for labor, and 35 per cent was truck cost.

The total cost for the year for cleaning 19,507 catchbasins was $14,439.84. This was an average cost of 73 cents per basin per annum. Of this, the labor cost was 50 per cent. The low total cost was due to the use of mechanical Eductors, while the high percentage of labor cost was due to the use of spoon cleaning in outlying sections. The data do not enable a segregation of unit costs according to method used.

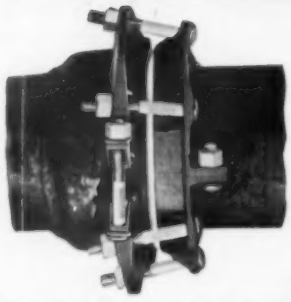
The Secret of Progress

To improve the administration of municipal services is no easy task. In trying to improve ours, we have accepted the idea that the secret of permanent municipal progress through reform is affirmative action with the spirit of cooperation in service dominant. By programming all services and expertly administering them with competent and trained crews, the progressive satisfaction of the wants of the people of a community may be reasonably satisfied.

CROSS SECTION
SKINNER BELL
JOINT CLAMP



★ DIRECT IN ACTION, THE SKINNER BELL JOINT CLAMP MAKES AN INSTANT, EFFECTIVE, LASTING REPAIR FOR BELL AND SPIGOT JOINT LEAKS. ★ SOFT RUBBER GASKET IS COMPLETELY SEALED AT BELL FACE BY MONEL METAL BAND AND AT SPIGOT BY HARD VULCANIZED TIP. NOT ONLY STOPS LEAK BUT INTRODUCES AN ELEMENT OF FLEXIBILITY TO JOINT—PREVENTS FUTURE TROUBLE. FOR PIPE SIZES 3" TO 48". SELF-ADJUSTING TO VARIATIONS IN PIPE THICKNESS. INSTANTANEOUS SHIPPING SERVICE.



SKINNER BELL JOINT CLAMP

A rugged malleable iron clamp, built to last. Cadmium plated pull bolts. Soft rubber gasket.

GET COMPLETE CATALOG

M. B. SKINNER CO.
South Bend, Ind.

Please send latest catalog.

NAME _____

ADDRESS _____

_____

M. B. SKINNER CO. *Est. 1898* **SOUTH BEND, IND.**

A Sensible Policy for Sewage Works

By FRANK WOODBURY JONES
Sanitary Chemist and Engineer, George B. Gascoigne and Associates, Consulting Engineers, Cleveland and New York

THE modern sewage-treatment works receives far more attention than did its antecedent of even a decade ago. This is especially true with the relatively small installations. Notwithstanding this noteworthy progress, there is still room for improvement in respect to due appreciation of the function a municipal sewage-treatment plant should perform. This is reflected oftentimes both in general and in detail by lack of provision of operation funds, on the part of those whose duty it is to apportion budgets so that maximum service and returns may be received from the amounts available for distribution. Except in those instances where specific income is allocated to definite use, as where sewer service or rental charges are made, there is still the tendency and temptation to forget the sewage plant, since it is usually located without the gates of the city, and is therefore less likely to come under the notice of the critical citizen and taxpayer.

Management of Sewage Treatment Plants

Proper plant management is not vested in any single person or department. It is a composite effort of state official, municipal executive, plant superintendent, and plant operator. Each has an important part, and when all are correlated, greatest effectiveness will be attained and the objectives desired from any plant are most likely to be achieved.

Administration

Since a sewage plant must be regarded as an integral part of municipal activities, how should its affairs be administered? Four more or less correlated interests are directly concerned with sewage-plant management, namely: the state; the municipal executive in whose department it is; the plant superintendent or supervisor; and the operators.

Sewage-treatment works are installed usually to attain definite objectives, such as to protect a public water supply, bathing beach or other recreational water against undue contamination; to safeguard waters against the killing of fish and the spoiling of drinking-water supplies of cattle; and to prevent unsightliness, odors and general nuisance caused by uncontrolled sewage discharge.

The state is particularly concerned that the plant installed be adequate to meet its peculiar requirements and that it be operated in such manner as to accomplish its intended purpose. To this end the government official makes inspections, demands reports and is either helpful or otherwise depending upon whether he has an appreciative knowledge of the problems involved or acts merely as a policeman. Conferences on sewage-treatment sponsored by state health departments have had marked influence in elevating the plane of sewage-plant operation and management not only in respect to the problems on the plant itself, but notably also in arousing a sense of responsibility in municipal officials. It is gratifying to observe that supervision on the part of the state is now for the most part directed toward improved management by constructive suggestions rather than to destructive criticism. Police tactics always put the plant superintendent on the defensive in an effort to elude and evade lapses, whereas a sympathetic attitude invites confidence and promotes cooperation.

Recently the newly appointed chairman of the sewer committee of a small town council admitted that he had never seen the sewage plant, although it had been in service for some twenty years. Ten years ago in this same town he would have served his two years and remained undisturbed and uninformed although the farmer through whose pasture the effluent flows might have registered several complaints. Today, however, when the plant at the state's insistence is being operated under the direction of a part-time technical supervisor, he is taken to the site, and the function and purpose of each of the several treatment units explained. In consequence, he is more appreciative of the necessity for certain expenditures the request for which otherwise might have been entirely ignored or else indefinitely postponed. Similar instances are becoming more common where there is better understanding between the resident operator and the city hall, with the result that the sewage plant is regarded as a member of the municipal family and not treated as a poor relation. The importance of this factor in securing effective sewage-plant operation and management cannot be too greatly emphasized.

The Plant Superintendent

Perhaps the most important link in the chain of sewage-plant administration is the superintendent. The larger the plant, the more essential it is to have a competent resident supervisor. To him falls the duty of carrying out policies formulated by state and municipality, and upon him rests the direct burden of producing maximum plant efficiency at minimum expense. Even the small or one-man plant is expected to give an accounting of methods pursued and results accomplished. At the larger plants where an engineer or chemist-superintendent is employed full time, much more is rightly expected, and it is to this class that some attention may be directed in consideration of detail of management which may be curtailed or amplified according as the size of installation is smaller or larger.

The duties of a plant superintendent naturally fall into several classes: for example, general policy; operating personnel; laboratory control; maintenance and upkeep; cost accounting; and records. It is obvious that there should be close cooperation between the superintendent

Barrett Tarvia

GOOD ROADS AT LOW COST

THE "Tractionized" surface of a Tarvia road provides lastingly safe traction for high-powered, high-speed automobiles.

THE BARRETT COMPANY New York Chicago Birmingham St. Louis Detroit Philadelphia Buffalo Lebanon Rochester Baltimore Minneapolis Cleveland Columbus Providence Toledo Youngstown Syracuse Hartford Boston Milwaukee Cincinnati Bethlehem Portland, Me. Norwood, N. Y.

In Canada: THE BARRETT COMPANY, Ltd. Montreal Toronto Winnipeg Vancouver

and the executive who secures the appropriation. Between the two, budget requirements and policies should be established, and every effort made to reach the goals set. By policy is meant decision as to general plan of procedure regarding political influence, wages, hours of labor, plant upkeep of both grounds and treatment devices, disposal of sludge cake, whether by gift or by sale, and other matters of like import. At this point it might be well to raise the question relative to the policy of plant beautification. There is no doubt regarding the growing popularity of beautifying sewage-plant surroundings with attractive shrubbery and velvety lawns. In this we most heartily concur. On the other hand, caution must be observed so that due attention to normal plant functions is not neglected. Both are essential to effective operation, but beautiful lawns and flowering shrubs will not improve a stream depleted of oxygen by a poor effluent, although it might divert the nose from a somewhat ill-smelling settling tank. The question arises also whether it is not better for the interested citizen to find a park where he expects only a sewage plant, than to find a sewage plant where he expected to see only a park. It is difficult to hide the unsavory purposes of a sewage works even from the uninitiated, although it must be recognized that prejudices can be allayed if the surroundings are clean, attractive and generally respectable.

Assured Tenure

A sewage plant should have an operating personnel adequate in number and competent as to mental and physical ability. Politics or favoritism deserves no part. Capable men should be selected and assured tenure under good behavior and faithful service. Licensing of operators after due examination, both physical and mental, is to be most highly commended and urgently advocated. Overloading the payroll with loafers is fatal to discipline and often results in denying those who are willing to work a proper competence.

Laboratory

Every sewage plant is entitled to as much laboratory control as possible. The entire plant may be regarded as a factory producing an end product by stages through the agency of delicate machinery at each step. It is important to know just how each unit performs. To this end a laboratory well equipped as to apparatus and personnel should be utilized constantly. But here also a word of caution appears proper. It is obvious that a small-plant operator cannot devote too much time to sampling and tests when other duties demand his attention. Also, in the larger plant the chemist-superintendent without an assistant is handicapped in supervising outside work if he is tied down to a laboratory bench or to a calculating machine. Routine laboratory analyses often lose their value because in the effort to keep abreast of the work there is no time to study results and govern the operating procedures accordingly. Wherever possible, there should be a laboratory assistant trained to do the routine work, yet sufficiently appreciative of the results to call attention to irregularities so that operating procedures may be suitably adjusted.

In this connection we have observed startling inconsistencies in some reported results, particularly in respect to bulk solids. Appreciating fully the difficulties in obtaining representative samples, and having in mind the frailty of the personal equation, together with the inadequacy of laboratory procedure in certain determinations, such as volatile solids, it does not appear logical that solids should always be out of balance. With proper attention to details of sampling and technique of analysis, there seems to be no good reason why over a period of time results should not be consistent. Why it is that at the end of a year a report from one plant shows a gain in total sludge solids, whereas another shows an unaccounted-for loss of some 25 per cent, is difficult to understand. Similarly, a gas production of some 20 cubic feet of gas per pound of volatile matter destroyed in one plant appears inconsistent with only 10 or 11 cubic feet as reported from another laboratory. Factors contributing to such discordant results require study and evaluation and emphasize the necessity of basing final judgment on long-time results rather than on analyses covering relatively short intervals. Unless we can make laboratory work tell a true story, it were better to devote that time to some other endeavor. However, it is our firm conviction that with proper attention to details of sampling, technique, and computation, correct results and reliable information may be secured.

Research vs. Routine

The question arises to what extent experiment and research should be included in routine plant operation and management. Where personnel and funds are available, all efforts to improve old methods and develop new procedures and processes are most highly commended. However, the urge toward the unusual or new should not sidetrack the routine essential to keep the old plant at peak performance. Little can be gained if the job at hand is neglected for the elusive bird in the bush.

Cost Figures

Cost figures on the operation of sewage plants are often misleading and insufficient. The *Sewage Works Journal* of January, 1932, carried a comprehensive and complete report upon "Sewage Works Operating and Cost Records." To observe all the details there recommended, while desirable, is not always possible, especially with limited personnel, yet the basic factors should be followed. With most superintendents there is the tendency to show costs as low as possible. To do this, overhead is often omitted entirely, and special conditions in respect to free labor and other items are not always fully evaluated. In any event the gross operating cost, including overhead, labor, materials and supplies, should be included at going prices. Credits may then be deducted and the superintendent still receive acknowledgment for economies conceived and effected. If this be done, comparisons may be made without distortion due to local circumstances.

Maintenance

In sewage-plant management when funds are curtailed, plant upkeep and maintenance is usually the first to suffer. It is relatively easy to put off until next year a needed coat of paint or some replacement where it is still possible to "get by." Such policy in the long run is expensive and leads to early total depreciation. Plant structures kept

Western Electric is *first again!*

This time it's
THE COAXIAL ANTENNA
for ultra high police radio systems

. . . that is an outstanding improvement in dipole antenna design.

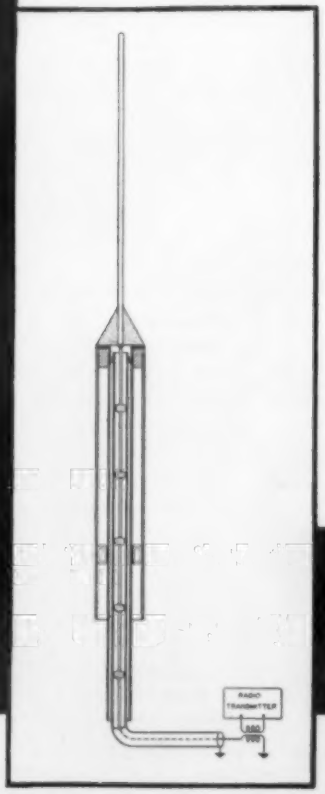
. . . that will substantially increase the ground plane signal over that produced by antennas now commonly used for police service. (A recent installation has shown a four-fold increase in effective radiated power.)

. . . that is designed as a half-way radiator for a particular operating frequency; no adjustments are necessary when erecting.

. . . that is symmetrical in appearance and outstanding in electrical and mechanical design.

•

This New Western Electric vertical half-wave antenna is the first of its kind on the market. It is another development of Bell Telephone Laboratories, and just one more proof that Western Electric pioneering brings you the new things first! For full details on Western Electric's complete line of equipment to meet every police radio need, write to Graybar Electric Co., Graybar Building, New York.



Western Electric

Distributed by GRAYBAR Electric Co. In Canada: Northern Electric Co., Ltd.

POLICE RADIO TELEPHONE

in repair and properly protected may have their useful life prolonged indefinitely. The matter of plant upkeep and maintenance is of major importance and a controlling factor not only in appearance but in actual length of effective service.

Plant Records

Sewage-plant records cannot be too detailed. A diary of daily events and happenings, while apparently inconsequential today, may be of major importance tomorrow. Records to be of value must be up to date. Not only chemical analyses, flow records and the like, but observations relative to wind, weather, odors or lack of odors, condition of receiving water, and anything pertinent to plant performance, should be duly recorded against the day of possible litigation, or for the benefit of those of the future who must plan extensions. The keeping of a complete up-to-date record of plant accomplishments is an essential part of a superintendent's duties and a prime essential to good management. Data should be so recorded that they may be converted to different bases such as per mg, per capita, or other, depending upon the need in any given case.

The Plant Attendant

When all is said and done, it is upon the plant attendant that the success or failure of sewage-plant operation depends. Upon him rests the responsibility of detailed observations and measurements during routine work such as sampling, measuring sludge depths, recording temperatures, power readings and numerous similar duties. To him the plant is entrusted during the night watches, and lapses in attention to detail may result not only in discordant plant results but frequently also in property damage and loss. It is essential, therefore, that the plant attendant be competent and trustworthy. A time clock cannot engender loyalty nor develop a sense of responsibility. This may be attained only by fair dealing and proper discipline.

ACKNOWLEDGMENT.—From a paper presented at the 1936 Public Works Congress in Toronto.

New Home of Public Administration Clearing House

TO house the fourteen autonomous associations of public officials now affiliated with the Public Administration Clearing House, the new building shown in the accompanying sketch is now under construction at the southeast corner of 60th Street and Kenwood Avenue, on the south front of Chicago's Midway. Funds for the erection and maintenance of the building, which is tentatively being called the "Public Administration Center," were given the University of Chicago by the Spelman Fund of New York.

The building, to cost $650,000, will be the first put into construction on University property since International House was completed in 1932. The architects are Zantzinger and Borie, Philadelphia, with Emery B. Jackson as associate.

The building will have a frontage of 152 feet along 60th Street and a depth of 45 feet, with a 36-foot wing at the southwest corner, and a 14-foot wing on the southeast corner. Ultimately, as the growth of organizations may require, the building can be expanded to form a "U" or a hollow square. Four stories in height, the building will have 22,000 square feet of office space. A conference room which will be the main public room, a library and stacks, a committee room, and a board room, are provided in addition to office space.

The organizations which will occupy the new building are: Public Administration Clearing House, Louis Brownlow, Director; American Legislators' Association and the Council of State Governments, Henry W. Toll, Executive Director; American Municipal Association, Clifford W. Ham, Executive Director; American Public Welfare Association, Fred K. Hoehler, Director; American Public Works Association, Frank W. Herring, Director; American Society of Planning Officials, Walter H. Blucher, Executive Director; Civil Service Assembly of the United States and Canada, G. Lyle Belsley, Director; Governmental Research Association, Robert M. Paige, Secretary-Treasurer; International City Managers' Association, Clarence E. Ridley, Executive Director; Municipal Finance Officers' Association of the United States and Canada, Carl H. Chatters, Executive Director; National Association of Assessing Officers, Albert W. Noonan, Technical Director; National Association of Housing Officials, Coleman Woodbury, Director; Public Administration Service, Donald C. Stone, Director, Consulting and Research Division.

M.I.T. Creates Division of City Planning and Housing

CREATION of a Division of City Planning and Housing and establishment of a new six-year course in City Planning Practice in which the realities of field experience will be combined with professional training, was announced on April 17 by Dean William Emerson of the School of Architecture of the Massachusetts Institute of Technology.

The curriculum of the course is based on recognition of the fact that solution of all planning problems, whether city, state or regional, depends upon the proper coordination of all fields involved, including, in addition to architecture and engineering, the economic, sociological and governmental factors.

Supplementing the Institute's existing undergraduate and graduate courses in city planning, the new course will bring to its students the benefits of professional field practice through active work with leading city, state and regional planning agencies. Cooperating in the course will be the Boston City Planning Board, the Division of Metropolitan Planning, the Massachusetts State Planning Board, the New England Regional Planning Commission, and the City Planning Board of Springfield, Mass. The course will lead to the degree of Master in City Planning, together with the degree of Bachelor of Architecture in City Planning as of the preceding year.

Among the authorities who will be associated in conducting the course, under the direction of Prof. Frederick J. Adams, are: Sir Raymond Unwin, Lecturer in City Planning and Housing, Joseph T. Woodruff, Assistant Professor of Regional Planning, Dr. Thomas Adams, Research Consultant in City Planning, Marjorie Sewell Cautley, Lecturer in Landscape Design, William Stanley Parker, Lecturer in Housing, and Ralph Eberlin, Lecturer in Site Planning and Construction. Among the visiting lecturers will be Russell VanNest Black, Clarence S. Stein, Jay Downer and Albert Mayer.

BUILT TO HANDLE TOUGH JOBS AT LOW COST!

THAT'S WHY MUNICIPALITIES ARE CHANGING TO FORDS

• Here is a truck you can put on the job and be sure it will stay on the job . . . mile after mile, month after month. The 1937 Ford V-8 Truck is built to "take it" . . . to tackle the tough jobs and get them done at a cost that's easy on your pocketbook.

• Here is a truck you can try on the job and find out for yourself how it handles your work, what it costs to operate. There's no cost, no obligation, no "strings" attached to this offer. All you have to do is call your nearest Ford dealer and set a date for an "on-the-job" test with your own loads, under your own operating conditions. We are content to let the truck itself convince you!

Ford

Convenient, economical terms through the Authorized Ford Finance Plans of the Universal Credit Company

• The Ford V-8 Hydraulic Dump Truck is available with either direct-lift or arm-lift hoist. Load space is 84 in. long, 66 in. wide, 12⅝ in. to tops of sides. Capacity is 1½ cubic yards.

FORD V-8 TRUCKS AND COMMERCIAL CARS

Reconstruction with Brick in Toledo

By GEORGE N. SCHOONMAKER
Director, Department of Public Service, Toledo, Ohio

PAVING reconstruction with brick in the city of Toledo has been successfully carried on through the various changes in Federal relief policy, beginning with the CWA in November, 1933, changing to FERA, and continuing with the WPA up to the present time. Reconstruction has progressed in two phases; starting with brick-turning in the first stage, and later on being transformed over into well-organized construction organizations capable of efficient performance.

In cooperation with CWA, FERA and WPA, approximately 358,000 square yards of brick surface has been reconstructed by turning old brick which had sufficient salvaged value, and by the addition of new No. 2 brick. The existing street surfaces represented all kinds of conditions, from practically impassable to fair. Many base failures were encountered, settlements over utility openings were common, and numerous patches and repairs were in evidence.

Approximately 20 per cent of all curbing was re-dressed and reset, and all broken sections replaced. Particular attention was given to the increasing of the radii at all intersections where this was possible and practical. Curb tile drainage was checked and necessary replacements made. All curb and street castings were reset to conform to new alignments and grades. All drainage structures were reconstructed to conform to the new layout.

Foundations Repaired

All types of foundations were encountered, such as gravel, crushed stone and concrete. Wherever practical, old foundations were repaired with the same material as the original foundation. However, considerable reliance was placed upon the use of No. 7 slag screenings, which were used extensively to raise the old foundations to the proper cross-section, and also for cushion material.

Slag screenings were thoroughly sprinkled and rolled, in some instances with 5- and 7-ton tandem rollers, to secure maximum compaction and thus eliminate uneven shrinkage. This portion was carried well in advance of the final strike-off operations.

Three Types of Joint Filler Used

All the projects which were carried on in cooperation with CWA, together with some of the early FERA projects, were constructed with sand filler. Later, grout filler was used on a few projects. However, experience with these fillers was not satisfactory, and a change to asphalt filler was made, with the understanding that the additional cost was justified by the improvement obtained. Sand and grout fillers were used mainly during the winter operations until experience taught us that bituminous fillers could be applied with a minimum of difficulty. This experience, together with the assumption of the extra cost, decided the matter of change on this portion of the work involved.

The first asphalt filler projects were constructed by pouring the hot material on the surface and using squeegees for spraying. As operations advanced and efficiency developed, further changes were made, and spraying the brick surface with calcium chloride and the spudding of surplus material followed.

New brick used varied from 5 to 50 per cent, depending upon the salvaged value of the brick removed. A total of 71 streets, involving 358,000 square yards, is practically completed. This yardage required the use of 2,575,000 new No. 2 brick, which, based on the use of 36 bricks laid to the square yard of pavement, would be the equivalent of 20 per cent replacement. Altogether, a total of 434,492 square yards of brick surface has been reconstructed, which is the equivalent of 31 miles of pavement, 24 feet in width.

This entire improvement will have been made at a cost of $105,000 to the city of Toledo, or less than $3,500 per mile. It has furnished employment equivalent to 5,000 man-months.

The Dorr Street Project

Dorr Street from Washington Street to the New York Central Railroad, a distance of 9,560 feet, is 36 feet in width. This project contained 41,452 square yards and required 1,500,000 No. 1, 3-inch brick. Work was started in March, 1934, and was completed in August of the same year. The total cost, $139,329.98, was divided as follows: sponsor's contribution, $11,310.40; Federal Emergency Relief Administration, $128,019.58.

The construction involved the removal of double street-car tracks, and supporting wooden ties. Where steel ties had been used, they were left in the foundation, only the tie plates under the rails being removed; and where wooden ties were completely covered by concrete, no tie removals were made. All curb was re-dressed and reset, and the corners of intersecting streets were increased to a uniform radius of 15 feet. All tile drains were checked and replacements made where necessary. All catch-basins, inlets and manholes were reconstructed to conform to the new alignment and grade. On the existing foundation, 1,268 tons of asphalt binder course were used to raise the foundation surface to a proper cross-section and for elimination of any major inequalities in the base in adjoining parallel sections.

The cushion material consisted of No. 7 slag screenings which, when rolled and compacted, averaged about 1½ inches in depth. All cushion material was thoroughly sprinkled, hand-tamped, and rolled with a hand roller to secure maximum compaction, and to eliminate any vertical

Here's Proof

of record economy-record dependability

A. A. A. officials selected the half-ton pick-up at Chevrolet's Flint plant.

Over high peaks in high gear the truck went forward, never faltering.

CHEVROLET "ECONOMY MODEL" TRUCK

hauls certified 1000-pound load

The searing sands of the desert, with temperatures up to 116 degrees, were met with ease.

10,244 MILES

at cost of
less than

1¢ PER MILE

for gas

The thermometer held below freezing for days, with highways covered with snow.

This Chevrolet "Economy Model" truck was equipped with Genuine Chevrolet Accessories.

The first oil—two quarts were added at San Francisco, after 3,850 miles.

City officials joined in welcoming the half-ton pick-up truck back to Detroit.

AAA CONTEST BOARD JUNCTION CITY

Study this
Unequaled record—then buy

CHEVROLET TRUCKS

Location of Test	'Round the Nation —Detroit to Detroit
Distance Traveled	10,244.8 Miles
Gasoline Used	493.8 Gallons
Oil Consumed	7.5 Quarts
Water Used	1 Quart
Gasoline Cost	$101.00
Gasoline Mileage	20.74 Miles per Gallon
Average Speed	31.18 Miles per Hour
Running Time	328 Hours, 31 Minutes
Gasoline Cost per Mile	$.0098
Average Oil Mileage	1,365.9 Miles per Qt.
Total Cost of Repair Parts	$ .73

These records have been certified by the A. A. A. Contest Board as being officially correct.

Here, in these amazing facts and figures, is definite proof that Chevrolet trucks are the best trucks for you! . . . See your nearest Chevrolet dealer today, and buy Chevrolet trucks for *more power per gallon, lower cost per load*—for maximum dependability and maximum all-round economy.

CHEVROLET MOTOR DIVISION
General Motors Sales Corporation
DETROIT, MICHIGAN

General Motors Installment Plan—monthly payments to suit your purse.

FOR ECONOMICAL CHEVROLET TRANSPORTATION

"MORE POWER *per gallon* LOWER COST *per load*"

extrusion between the brick joints. Variations in crown, required to meet conditions at intersections, necessitated hand luting for a large part of the area.

All brick were trucked to the project, unloaded and stacked by hand labor supplied by the FERA. The brick were moved to the street by hand labor, with tongs. After culling and checking with a 10-foot straight-edge to reduce and confine the inequalities to a maximum of ¼-inch, the surface was then rolled with a 5-ton roller.

Asphalt filler, conforming to Ohio State Department of Highways specifications "F-1," was then applied at a temperature of 300° F. Immediately preceding the application of the filler, the surface was sprayed with a solution of calcium chloride, starch and water; approximately in these proportions—100 pounds calcium chloride, 3 pounds starch, and 25 gallons of water. This solution was sprayed upon the surface in sufficient quantity to break the bond between the brick surface and the asphalt filler.

Following this operation, the filler was spread on the surface by means of buckets and squeegeed into place. As soon as the filler became cool enough, and prior to its becoming solidified, all surplus material remaining on the surface was removed and returned to the kettles. Common mortar hoes with the ends straightened out were used for the removal of surplus material.

The Bancroft Street Project

The recently completed Bancroft Street project had a length of 8,235 feet and a width of 36 feet, with 35,045 square yards. The total cost of this improvement was $255,016, with the sponsor's contribution $61,209, and from the WPA $193,807. A total of 1,258,000 No. 1, 3-inch wire-cut lug brick were used in this improvement.

Bancroft Street practically bisects the city of Toledo and divides the west side of the city on an east-and-west line. It is one of the most important crosstown thoroughfares in the city. Electric street-car service, which formerly operated over a major portion of it, has been supplanted by two motor-bus lines.

The original pavement consisted of wood block, brick, asphalt, cold patch and some concrete, constructed at various times between 1905 and 1919. Because of base failures, track construction failures, and utility openings, the surface somewhat resembled Jacob's coat. It was reconstructed in much the same manner as Dorr Street.

ACKNOWLEDGMENT.—From a paper presented before the annual meeting of the National Paving Brick Association.

City Health Contest—Winners Announced

CITIES having the best health protection records for 1936, and thereby becoming winners in the eighth Inter-Chamber City Health Conservation Contest annually conducted by the Chamber of Commerce of the United States in cooperation with the American Public Health Association, have been announced. For purposes of the contest cities are divided into six population groups. Awards are made in each of the six population groups, but no attempt is made to compare cities in one group with those of another group.

During 1936 a total of 257 cities in 43 states, Alaska and Hawaii, having a population of some 25 millions, nearly a half of the total urban population of the country, participated. The object of the contest is to raise the level of health protection and health promotion services in cities, to the end that there will be less sickness and fewer premature deaths.

The services upon which each city is graded are essentially life-saving and health-promotional in character, and include such things as the safety and distribution of the public water supply; the safety and adequacy of sewage treatment and disposal; the quality and protection of the milk supply; the extent to which children are safeguarded against those diseases for which definite protection is available; the effectiveness with which the city provides for the health of its school children; the success of the city in controlling and preventing such important diseases as tuberculosis, syphilis and gonorrhea; the extent to which community efforts have established effective measures to prevent maternal and infant deaths. These and other health-protection services are carefully studied, analyzed and graded by a committee of health experts.

The winning and honorable mention cities in 1936 are:

500,000 population and over—MILWAUKEE; honorable mention, Pittsburgh.

250,000-500,000—DALLAS; honorable mention, Oakland, Calif.

100,000-250,000—NEW HAVEN; honorable mention, Syracuse, N. Y., Grand Rapids, Mich., Springfield, Mass., Reading, Pa., Honolulu, Erie, Pa., Hartford, Conn., and Tacoma, Wash.

50,000-100,000—PASADENA; honorable mention, Brookline, Mass., Waterbury, Conn., Sacramento, Calif., Evanston, Ill., Binghamton, N. Y., Racine, Wis., and Saginaw, Mich.

20,000-50,000—GREENWICH, CONN.; honorable mention, Auburn, N. Y., Watertown, N. Y., Montclair, N. J., and Plainfield, N. J.

Under 20,000—MIDDLETOWN, N. Y.; honorable mention, Hibbing, Minn., and Blackwell, Okla.

Special awards for cities having twice previously won the contest and having during the past year maintained their previous high standards of health achievements were given to Baltimore, Md., Hackensack, N. J., Newark, N. J., Palo Alto, Calif., and Schenectady, N. Y.

How Shall the Trailer Be Taxed?

THE problem of taxing the gasoline nomad is tackled in a revised survey, "The House Trailer: Its Effect on State and Local Government," published by the American Municipal Association, and prepared with the collaboration of the American Public Welfare Association, the American Society of Planning Officials, and the National Association of Housing Officials.

It is figured that the trailer vacationist gets utility services such as water supply, garbage collection and sewage disposal, not to speak of police, fire and health protection and the use of general community services such as streets, parks and public buildings. The permanent trailer family, in addition, will take advantage of education, relief and voting facilities.

Question No. 1—How shall the trailer be assessed? On the basis of property value or on "benefits made available per diem?" The survey finds the former impracticable, the "benefits" plan the only alternative, observing that the "computation of the value of those benefits is a most difficult task. . . . Most cities," it is added, "will undoubtedly hesitate to assess the seasonal trailerite for his full share of government costs, inasmuch as he constitutes tourist trade."

Question No. 2—Who shall collect this tax, and how shall it be collected? The first proposal on collection is to substitute a state-collected, locally-shared tax for the above-mentioned service charge collected by local units. This is not considered feasible. The other, to collect directly from the person who runs the trailer camp, and let him pass it on in his fees, is regarded as more workable.

ALLIS-CHALMERS OWNERS

REPEAT

CONTROLLED IGNITION

BRINGS A *New Era* OF TRACTOR ECONOMY AND SATISFACTION . . .

Repeat orders are the best testimonials! When the Controlled Ignition Oil Tractor was introduced—it answered what engineers had called the greatest tractor need of the day—the economy of Diesel fuel oil COMBINED with the flexibility, instant starting, balance, reliability and all-round performance of gasoline models. Probably the best evidence that Controlled Ignition met a real need is the expression of Oil Tractor owners—with repeat orders. The first contractor owner of Oil Tractors has since standardized on A-C Controlled Ignition. So has the first county purchaser of Controlled Ignition. And so have hundreds of other Allis-Chalmers owners everywhere. There's a reason for this expression of user satisfaction. Let the A-C dealer show you.

ALLIS-CHALMERS MANUFACTURING CO.
Tractor Division, Milwaukee, U. S. A.

WINNEBAGO COUNTY "REPEATS"

First purchaser of current model Oil Tractors was Winnebago county, Ill., in January, 1936. They bought the first three Controlled Ignition Model "L-O's"—two of which are shown here with Continental scrapers. In need of an additional tractor recently, nothing else would do but another Model "L-O". Controlled Ignition owners repeat!

Controlled Ignition **OIL TRACTORS**

Discussion of an Old Asphalt Pavement

An Article in the November, 1936, Issue Prompts Comments

Conclusion Erroneous?

To the Editor of The American City:

While reading some back numbers of magazines that I was too busy to read when they arrived, I came upon an article in your November issue, page 63, "A Forty-Seven-Year-Old Asphalt Pavement," by R. C. Heath.

I note that the author states that the penetration of the Trinidad asphalt cement, as used, was 63; and that the penetration of the bitumen now in the pavement, after 47 years, is 55. Thus it is assumed that the asphalt cement showed very slight hardening. Such a statement is far from the truth.

As is well known, Trinidad asphalt cement is high in native mineral content. The apparent penetration as taken upon the cement, fluxed and ready for use, is very much lower than the actual penetration of the mineral-free bitumen of the cement. In this case, with a cement of an apparent penetration of 63, the true penetration of the bitumen was near 100 (more or less), depending upon the flux used.

The instant the asphalt cement becomes the binder in the paving mixture, the mineral, naturally contained in the cement, becomes a component part of the mineral structure. Thus, it is obvious that the apparent penetration of the asphalt cement (mineral present) is not the effective, or real, penetration of the bitumen at all. All asphalt cements will harden some in the mixer, even under proper temperature control and good mixing procedure.

Despite the erroneous conclusion stated in the article under discussion, a very important disclosure could have been profitably stressed. This old pavement has given excellent service, and the penetration of the asphalt binder now in the pavement is 55, a very respectable one. With an original penetration of approximately 100, it now has a penetration that is widely used nowadays as the original penetration of the asphalt, which must undergo some hardening during the manufacture of the mixture as well as that which will naturally occur in service.

For some years now some of us have been pleading for much softer asphalt cements in hot-mix pavements. The reason for the use of softer asphalts is obvious, and this record of a 47-year-old pavement bears out the soundness of our reasoning.

H. W. Skidmore.

Chicago Testing Laboratory,
Chicago, Ill.,
March 10, 1937.

Further discussion of this subject appears in two letters on page 85 of this issue.

From The American City, November, 1936, page 63:

How was this 47-year-old street constructed?

"Records in possession of W. H. Droege, Asphalt Superintendent and Materials Chemist of Fort Wayne, show that Trinidad refined asphalt, light flux oil, cement as the filler, and local pit sand as the aggregate, were used in making the mixture for the wearing surface. No binder course was used. A bituminous cushion placed upon the concrete base supported the asphalt top.

"The tests made on the bitumen recovered from cuts made of the wearing surface and taken from this street after its long term of service are of interest. When the pavement was laid, in 1889, the Trinidad Lake asphalt cement used in the wearing surface had an average penetration of 63. A method for determining ductility was not known at that time and was not developed until years later.

"The penetration of the bitumen extracted recently was 55 at 77° F., just a trifle harder than it was when it was put into the mixture 47 years ago, while the ductility of the bitumen was just as good as the day it was laid, which no doubt accounts for the long life of Fort Wayne's oldest pavement."

A Word from Fort Wayne

To the Editor of The American City:

Your magazine carried an article in the April, 1936, issue, giving Fort Wayne, Ind., asphalt maintenance costs and also, in the November, 1936, issue, an analysis of the asphalt pavement on West Wayne Street in Fort Wayne, the asphalt pavement being 47 years old in 1936.

In May, 1936, a letter was received from Mr. Miller of the Technical Bureau, Barber Asphalt Company, Maurer, N. J., requesting a sample from the 47-year-old asphalt pavement. In June, 1936, a test report was received giving the bitumen content as found by the Barber Company, namely 9.7 per cent, the filler and aggregate gradations, together with tests made by the Barber Company on the recovered bitumen, the penetration, ductility and the melting point, the tests on the recovered bitumen made on the asphalt actually extracted from the 47-year-old mixture.

The writer did not make tests on the recovered bitumen, as the city laboratory does not debate on kind or quality of asphalt; but Trinidad asphalt cement, identified by its ash, was used in the old pavement mentioned, as all ingredients as found during the analysis made by the writer, in Fort Wayne, in February, 1936, are on file. More than that, further samples can be removed from this old paving and proof furnished that the bitumen was Trinidad asphalt cement, the filler natural cement, and the aggregate local materials.

This Trinidad asphalt pavement in its 48th year, open to traffic in 1937, with an area of 19,500 square yards of asphalt surface, will not cost the city of Fort Wayne over 1½ cents per square yard for maintenance.

The question as to the penetration of the Trinidad asphalt asphalt cement is a matter of opinion and cannot be commented upon, as the original intent of the mixture analysis by the writer for the city of Fort Wayne was to show that if good materials are used in asphalt paving, the taxpayer receives 100 cents on the dollar in after years.

Mr. Skidmore is correct in the statement that all asphalt cement will harden during asphalt plant heating or melting of the asphalt cement, then combining with hot aggregates and until the composition has cooled to atmospheric temperatures in the roadway after rolling. In Fort Wayne for asphalt mixture manufacture, that is, hot-mixtures, a penetration of not lower than 50 but nearer to 60 at 25 degrees C. is always recommended, with slightly excess bitumen in the total asphalt mixture for loss in heating through plant, during manufacture and until cooled to atmospheric temperatures, with close observation of the mineral filler added to all mixtures.

Fort Wayne, Ind.,
March 22, 1937.

W. H. Droege,
Asphalt Supt.-Materials Chemist.

One county after another *turns to*

STANDARD ASPHALT ROAD OIL

THE demand is continually increasing for more and better secondary or farm-to-market roads. Farm trucks and pleasure cars need faster, safer, all-weather highways. The threatened exhaustion of the supply of mineral aggregate in many localities, because of the wastefulness of the unbound or loose aggregate surface, has placed a further demand for improved methods of construction.

As a solution, more and more state and county highway officials are turning to Standard Asphalt Road Oil. It is only natural. Oil-processed aggregate surfaces answer all their problems. They provide smooth, all-weather highways, conserve the supply of mineral aggregate, and, of most importance, give *more* miles of roadway per dollar.

Your local Standard Oil representative will be glad to give you construction methods and specifications for using Standard Asphalt Road Oil with the particular kind of mineral aggregate in your territory. Call him today.

Asphalt for every purpose

STANDARD OIL COMPANY
(INDIANA)

To the Editor of The American City:

I have read the article by Mr. Heath and also the letter from Mr. Skidmore. Without reference to the differences in penetration of a bitumen containing mineral matter and the penetration of the extracted bitumen, I am in entire agreement with Mr. Skidmore's statement that under modern conditions of preparation and laying, all asphalts are likely to become hardened, to some extent, prior to their actual service under traffic, and for this reason we are advocating the use of higher penetration asphalts for given types of construction than we were some years ago.

Asphalts may also harden under service conditions, particularly when laid in a poorly designed hot mix which, upon thorough compaction, contains a considerable percentage of voids. The same is true of a properly designed mix which is not thoroughly compacted so as to reduce voids to a minimum. In order to reduce hardening under service conditions to a minimum, we therefore feel that it is highly important both to design the mix for low void content and to insure thorough compaction so that the mixture actually contains a low percentage of voids. This is particularly important in wearing course construction.

Prevost Hubbard,
Chemical Engineer.

The Asphalt Institute, New York City,
March 23, 1937.

To the Editor of The American City:

I am glad of the opportunity of commenting on the letter addressed to you by Mr. Hugh W. Skidmore concerning my article entitled "A Forty-Seven-Year-Old Asphalt Pavement."

It was far from my intention to distort the facts concerning the characteristics of the Trinidad asphalt in this pavement, as is evidenced by the fact that I stated definitely that the penetration of the asphalt cement in 1889 was 63 and that the penetration of the bitumen after extraction was 55, assuming, of course, that it is common knowledge in the paving with its naturally occurring mineral filler can be extracted from a finished pavement.

Mr. Skidmore is in error in assuming that the penetration of the bitumen in the asphalt cement was near 100. Our experience indicates that the penetration of the bitumen in a Trinidad asphalt cement of 63 penetration would be 80 or possibly slightly less. This would indicate a hardening of 25 degrees or slightly over 30% of the original penetration.

I agree with Mr. Skidmore that softer bitumens can be used advantageously in paving mixtures and offer the superior service given by Trinidad Lake asphalt over a fifty-year period as confirmation.

Ralph C. Heath.

The Barber Co., Philadelphia, Pa.,
April 5, 1937.

Industrial Wastes in City Sewers—I

A Summary Report of the Committee on Sewerage and Sanitation of the American Public Works Association

INDUSTRIAL wastes are subject to study initially upon the basis of their physical, chemical, biological and germicidal properties, and secondly upon the possible effects of any one or a combination of one or more of these properties upon the sewage-carrier system, the sewage-treatment works or the sewage-treatment process.

Effects upon the sewage-carrier system may be classified under the general headings of tendency toward deterioration of the materials of construction and the effects resulting from deposited suspended solids tending toward resistance to flowage and sewer stoppage. Similar effects may be anticipated upon and in the treatment-plant structures and equipment.

Biological properties of industrial wastes may be reflected directly—depending upon the character of sewage-treatment process—in added resistance to organic load oxidation with resulting increased cost of treatment; and germicidal or toxic properties may be reflected in their possible effects tending toward lessening the biological activity upon which organic matter oxidation depends.

The extent of dilution afforded by the sewage volume into which industrial wastes may be discharged, obviously is a factor of importance. Generally speaking, the greater the dilution, the less may be the tendency toward chemical deterioration of construction materials and equipment, and retardation of biological activity, in the event of treatment through the use of a biological process.

Pre-Treatment of Trade Wastes

Frequently it may be essential that certain kinds of wastes be pre-treated at their source of origin before discharge into the carrier system, and among some of the most common are those produced by the following:

1. Tanneries (leather and fur skin)
2. Packing houses and allied industries
3. Paper industry
4. Brewing industry
5. Textile industries
6. Gas and coke industries
7. Oil industry
8. Steel products industries
9. Marble and stone cutting plants
10. Acetylene manufacturing plants
11. Vegetable and fruit canning industries
12. Rubber industry
13. Paint industry
14. Creamery and allied milk industries

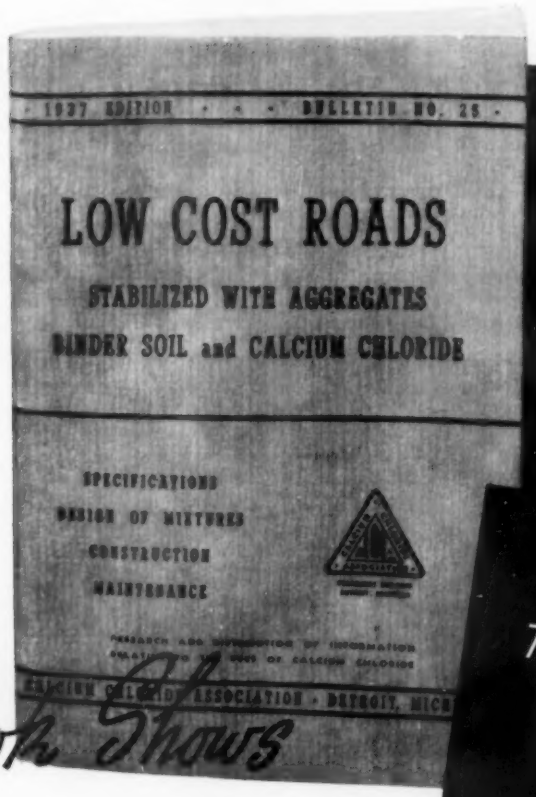
Laws and regulations have been found essential to proper control by municipal authorities of sewerage systems and treatment works under their jurisdiction in so far as the matter of industrial wastes may be involved.

The Sewerage Commission of the city of Milwaukee, for example, is empowered under the statute which enabled its creation, to regulate the character and quantity of industrial waste discharged into the public sewer system. Laws enacted by other states also have granted similar powers to their municipalities, excerpts from some of which are herewith cited.

Massachusetts and New Jersey Laws

Section 7 of chapter 83 of the General Laws of Massachusetts, makes the following provision:

"If said department (Department of Health) determines after investigation that the unsatisfactory operation of a sewage-disposal system is due wholly or partly to the discharge into the system of manufacturing waste



This Book Shows

86 PAGES
75 PICTURES
CHARTS
TABLES
SPECIFICATIONS

HOW TO BUILD
YEAR 'ROUND—LOW COST
CALCIUM CHLORIDE STABILIZED SOIL ROADS

SOIL-STABILIZATION, pronounced by government and state officials as the greatest discovery in highway construction in years, permits the building or improving of secondary roads with local labor from local materials, at the lowest possible cost.

This book describes in detail the principles of stabilization with calcium chloride, and gives specifications for binder soil, fine and coarse aggregates mixtures. It tells how to find, test, proportion and bind these materials. It gives information on drainage, crown, maintenance. Full of photographs, charts, tables, testing methods, and general data, it is a book that every highway official will want—a book he can depend upon—a book that will save him much time and money, give him more good roads for less money.

Your copy awaits your inquiry. Write for it today to any of the member companies listed.

CALCIUM CHLORIDE ASSOCIATION

Solvay Sales Corporation, 40 Rector Street . New York City
The Columbia Alkali Corporation . . . . Barberton, Ohio
The Dow Chemical Company . . . . . Midland, Michigan
Michigan Alkali Company . 60 E. 42nd St., New York City

CALCIUM CHLORIDE
FOR STABILIZING ROAD SURFACES

or other substances of such character as to interfere with the efficient operation of said works, it may if necessary prohibit the entrance of such waste or other material, or may regulate the entrance thereof into the system, or may require the treatment of such waste or other material in such a manner as may be necessary to prevent its interference with the operation of the works."

Section 10, Chapter 83, General Laws of Massachusetts, provides as follows:

"The aldermen of a city or the sewer commissioners, selectmen or road commissioners of a town may make necessary regulations regarding the use of common sewers to prevent the entrance or discharge therein of any substance which may tend to interfere with the flow of sewage or the proper operation of the sewerage system or disposal works."

An ordinance for the protection of the sewer system exists in the city of Worcester, Mass., and stipulates as follows:

"No person shall throw into any drain or sewer, inlet, manhole or catch-basin, any earth, dirt, stones, bricks, sawdust, ashes, cinders, shavings, hair, oyster, lobster or clam shells, or any other substance detrimental to the sewers or the use thereof. (Section 19, Chapter XXXIV.)

"No live, exhaust or waste steam and no water of a temperature above 140 degrees F. shall be discharged into the public sewers or into any drain connected with them. (Section 11, Chapter XXXIV.)"

A contract existing between the municipalities in the Passaic Valley Sewerage District, and the Passaic Valley Sewerage Commissioners, dated May 15, 1911, excludes:

". . . all waste from gas works and all substances or discharges which might injuriously affect the integrity of the sewer or sewers when constructed."

The agreements between the city of Paterson and certain industrial concerns across the river from Paterson for discharge into the Paterson sewer system and Passaic Valley trunk sewer include the following stipulation:

"9. The company hereby agrees to comply with all present or future rules and regulations of the city, concerning the character of sewage and trade wastes which may be discharged into the city sewerage system, and the company hereby agrees that it will at no time discharge into the sewer any liquids which contain oils, gasoline or any explosive or inflammable materials, or any substances which may be detrimental to or cause disintegration of the sewer structures; or any live steam, or excessively hot liquids; or any other materials which may endanger the life or stability of the sewer structures or which may endanger the life or health of persons within the sewer structures."

Municipal Ordinances

The city of Fostoria, Ohio, following serious trouble at the sewage-treatment plant due to industrial wastes, enacted a protective ordinance, from which the following excerpts are taken:

"Section 1. That it is deemed necessary for the safe, economical and efficient management and protection of the sewerage system, and sewage pumping, treatment and disposal works, that the emptying . . . of any grease, fats, oils, acids, carbon, iron or mineral wastes, or the wastes from any mercantile, manufacturing or industrial enterprise, other than domestic sewage, which would cause clogging, or which is injurious to said sewers, sewage pumping, treatment or disposal works, or interferes with the proper treatment of domestic sewage, or the operation and maintenance of the sewage-disposal works, shall be, and the said is, hereby forbidden and prohibited.

"Section 2. That the director of Public Service shall have authority . . . to require any and all . . . industrial establishments . . . to treat all . . . wastes . . . prior to the discharge thereof into the sewers or sewage system of said city, when he deems it necessary for safe, economical and efficient management and protection of the sewage system, and sewage pumping, treatment or disposal works. . . . When such . . . waste plant or device is installed, the degree of treatment shall be satisfactory to the Director of Public Service, and he shall have access to these local treatment plants at all reasonable times for the purpose of inspection and tests . . . whenever such . . . industrial enterprise . . . shall fail to comply with the requirements of the Director of Public Service, they shall forfeit their right to the use of such sewer or sewers, and the director of Public Service shall forbid and exclude the use of the sewers of said city for the emptying or discharge of such waste therein, until the same is treated according to the requirements and to the satisfaction of the Director of Public Service."

The city of Durham, N. C., has under consideration at the present time a form of ordinance containing regulatory powers applicable to wastes produced by the textile industry. This ordinance, in part, has to do with pre-treatment at the source and with the matter of providing storage facilities through the use of which the rate of flow into the sewer system may be regulated. The proposed preliminary draft of the ordinance is as follows:

"Section 1. From and after ———— no industrial or other wastes that may be detrimental to the biological processes upon which the proper purification of domestic sewage depends shall be admitted to the sanitary sewers of the city of Durham.

"Section 2. No industrial or other wastes other than domestic sewage shall in any event be admitted to the sanitary sewers except upon a permit to be issued by the City Manager, said permit to be revokable at any time upon the presentation of satisfactory evidence that conditions under which the permit is issued are being violated.

"Section 3. A condition precedent to the issuance of any permit shall be ability to comply with the following requirements:

"(A) That no industrial or other wastes other than domestic sewage shall be discharged into the sewers at an hourly rate in excess of 25 per cent more than the average hourly discharge for a 24-hour day.

"(B) That such pre-treatment shall be given such industrial or other wastes as will comply with the provisions of Section 1 of this ordinance, such proposed pre-treatment to be designated in the permit.

"(C) That any change in the method of treatment at any time that may be necessary to accomplish the desired purpose shall be evidenced by the issuance of a new permit.

"(D) Such pre-treatment shall include the neutralization of all caustic wastes and the adjustment of all wastes for alkalinity and biological oxygen demand to comply with such standard as the city may from time to time determine will permit the satisfactory operation of the sewage disposal plant or plants.

"Section 4. Any person, firm or corporation violating the provisions of this ordinance shall be deemed guilty of a misdemeanor and upon conviction shall be fined not exceeding $100 or imprisoned not exceeding 30 days for each offense."

Industrial Surveys Aid Regulation

In extensive sewerage districts where industrial activities are numerous, varied, and complex, industrial surveys extending over considerable periods of time are means to tangible ends, in that through their grouping, classification and adaptation, rather definite conclusions may be reached. Upon the basis of these conclusions general standards may be established, these standards serving as substantial guides relative to wastes admission to or removal from the sewer system, and as to the question of pre-treatment and its extent. Such standards of which the writer has first-hand knowledge have for a number of years been employed by the Milwaukee Sewerage Commission, and are enumerated in the following:

1. Removal from industrial wastes such solids as might tend to deposit in sewers.

2. Removal or pre-treatment of wastes containing active chemical constituents which through their activity tend toward destruction of construction materials and equipment such as pumps, valves, etc.

3. Removal or pre-treatment of wastes which may be deleterious either to the treatment process or treatment plant structures.

4. Removal from wastes of free oils, greases, tarry and resinous substances.

5. Removal of wastes of gaseous or inflammable character which may through their presence result in injury or death to men engaged in the work of sewer repair, maintenance, etc.

6. Isolating such solids as may be eliminated from wastes in manufacturing or pre-treatment processes, to prevent their later discharge to the sewer system as a convenient means of disposal.

7. Removal of all uncontaminated waters such as condensing water, cooling waters, yard and roof drainage waters, from the general sewage flow, and the diversion of same to storm water sewers or to natural watercourses.

(This report will be concluded in the June issue of THE AMERICAN CITY *and will cover the pre-treatment of wastes, the handling of sulphite liquors from pulp mills, and the question of charges for the use of sewers.)*

Reduce TRAFFIC CONGESTION with SERVI-CARS !

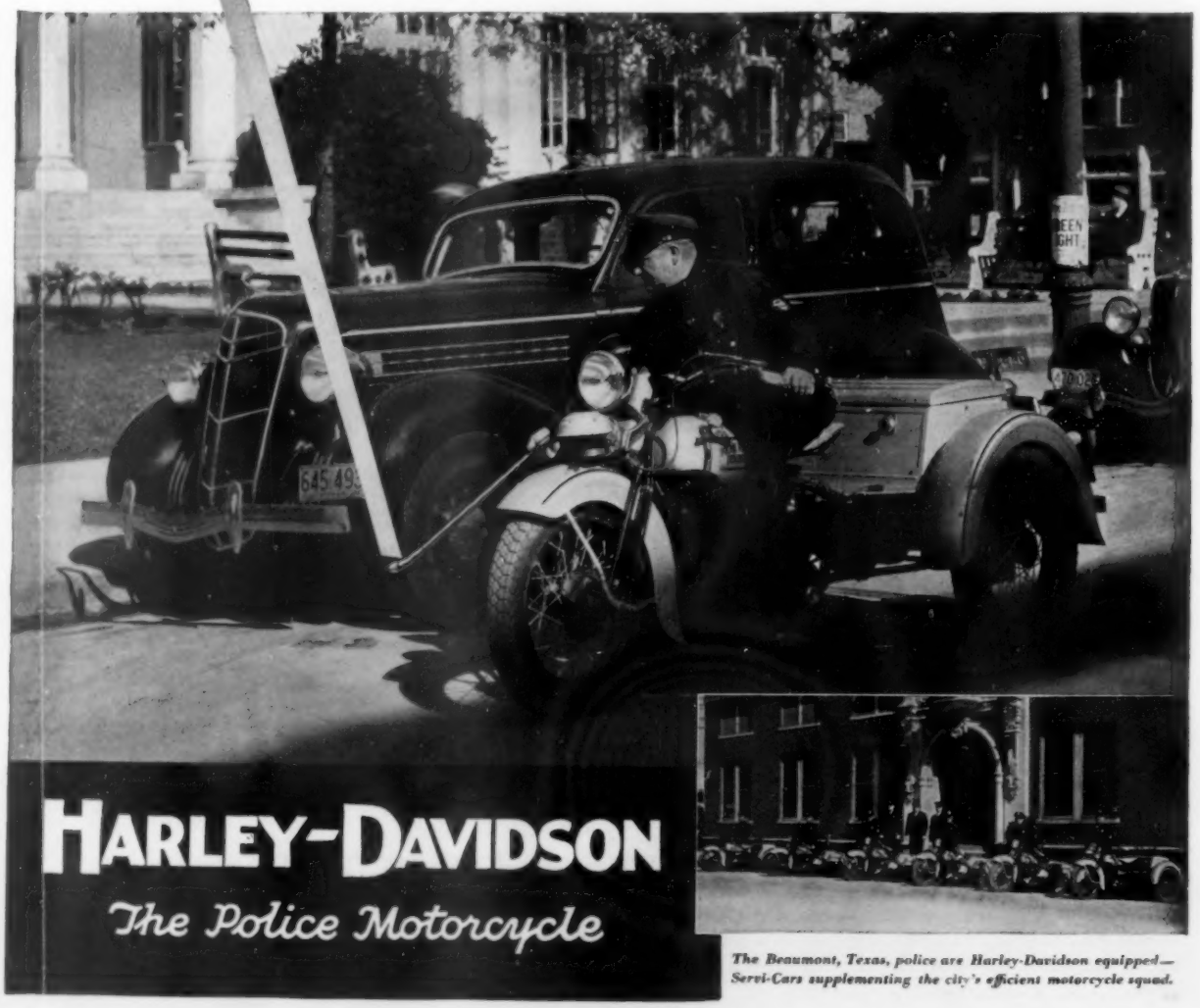
Cars parked overlong only add to traffic congestion. Eliminate this particular problem through a faster and more thorough check-up with Harley-Davidson Servi-Cars. Enables officers to cover many times the area possible by any other method.

The Servi-Car method helps you cut down traffic congestion — keeps parking hogs on the move — gives "regular" motorists a chance — gives retail merchants a "break."

What's more, Servi-Cars will release officers sorely needed for other duties — will make more men available to apprehend speeders, reckless drivers and other law-breakers who are a menace to your community.

Yes, Servi-Cars and Harley-Davidson Motorcycles make a wonderful combination for efficient traffic control. . . . . *See your Harley-Davidson Dealer now — or write us.*

HARLEY-DAVIDSON MOTOR COMPANY
DEPARTMENT M MILWAUKEE, WIS.



HARLEY-DAVIDSON
The Police Motorcycle

The Beaumont, Texas, police are Harley-Davidson equipped — Servi-Cars supplementing the city's efficient motorcycle squad.

Ten Municipal Electric Plants Furnish Basic Facts

HERE are ten municipal electric plants in California and Colorado, varying in capacity from the 37½-kw diesel plant that rolled up a surplus of $200 at Crook, Colo., to the 13,750-kw hydro and steam property of Colorado Springs that netted $281,472 in the last fiscal year. Loveland operates a hydroelectric station and a diesel plant. Fort Collins, Lamar and Yuma, all in Colorado, own steam plants with aggregate surpluses of more than $100,000. Palo Alto, Calif., and Yuma, Colo., are diesel installations.

Palo Alto Earns 80 Per Cent Net

The Electrical Department of the city of Palo Alto, Calif., purchased 90 per cent of its total annual output of 12,870,288 kwh in the last fiscal year. Line losses amount to 11.4 per cent. The municipality used 2,096,730 kwh and paid $33,368, or 1.1 cent per kwh. The remaining 9,302,841 kwh were sold for $283,253, or about 3 cents per kwh, making a total income of $316,621.

Surplus for the last fiscal year amounted to $130,302 after deducting all expenses, as follows:

Taxes	$16,925
Bond interest	7,062
Uncollectible bills	705
Operating and all others	136,935
Total	$161,627

Generating equipment consists of two 380-kw McIntosh and Seymour diesel engines installed in 1918 and 1919, and one 520-kw Busch-Sulzer diesel engine installed in 1921. These machines produced 1,184,688 kwh during the last fiscal year. The peak load was 3,600 kwh. A. V. Youens is Electrical Engineer.

Vernon's Big Diesels

This outstanding municipal diesel installation in Vernon, Calif., consists of five 5,000-kw Hoover Owens Rentschler units installed in 1933. Wayne N. Johnson is Chief Electrical Engineer of the Department of Light and Water.

Eight Plants in Colorado

Colorado Springs (population 33,237 in 1930) uses both steam-turbine and water-wheel generators to produce 28½ million kwh, costing 1.2 cents per kwh. Line losses amounted to 13.83 per cent. At a charge against the city of 2.15 cents per kwh, street lighting cost $39,345, or about $1.15 per capita. The remainder of the production was sold at an average rate of 3.37 cents per kwh. Additional gross revenue received from the sale of gas amounted to $232,945. The following statement for the last fiscal year is furnished by L. H. Shute, Superintendent of the Light and Power Department:

	KWH	
Total kwh generated	28,515,780	
Used in stations	1,589,060	
Delivered to system	26,926,720	
Billed	23,203,774	
Total losses	3,722,946	
Per cent loss	13.83	
Total gross revenue electricity		$758,993.70
Total gross revenue gas		232,945.25
Total revenue		$991,938.95
Total kwh municipal street lighting	1,828,191	
Street-lighting revenue city		39,345.16
Total operating reductions electricity		$345,388.24
Total operating reductions gas		194,158.79
Total deductions		$539,547.03
Net operating revenue		$452,391.93
Non-operating revenue electricity		22,936.26
Non-operating revenue gas		90.45
Total		$23,026.71
Total gross income		$475,460.48
Deductions from income electricity		132,133.56
Deductions from income gas		28,479.97
Total deductions		$160,613.53
NET INCOME		$314,846.95

The items of operating expense include payment to the general fund of the city to the amount of $80,000 in lieu of taxes. In addition, an item of $60,000 was paid from the Light and Power Department surplus to the city general fund, and the amount of $2,513 was paid to the town of Manitou Springs in lieu of taxes, or a total amount of $142,513, approximately 14.4 per cent of the gross operating revenue.

On January 1, 1936, electric rates were reduced an average of 10 per cent. About 85 per cent of the amount of the reduction was recovered during 1936 in increased sales.

Operating expense includes $50,075 paid to the Water Department for the use of water through the hydro plants for generation at the rate of $0.003 per kwh.

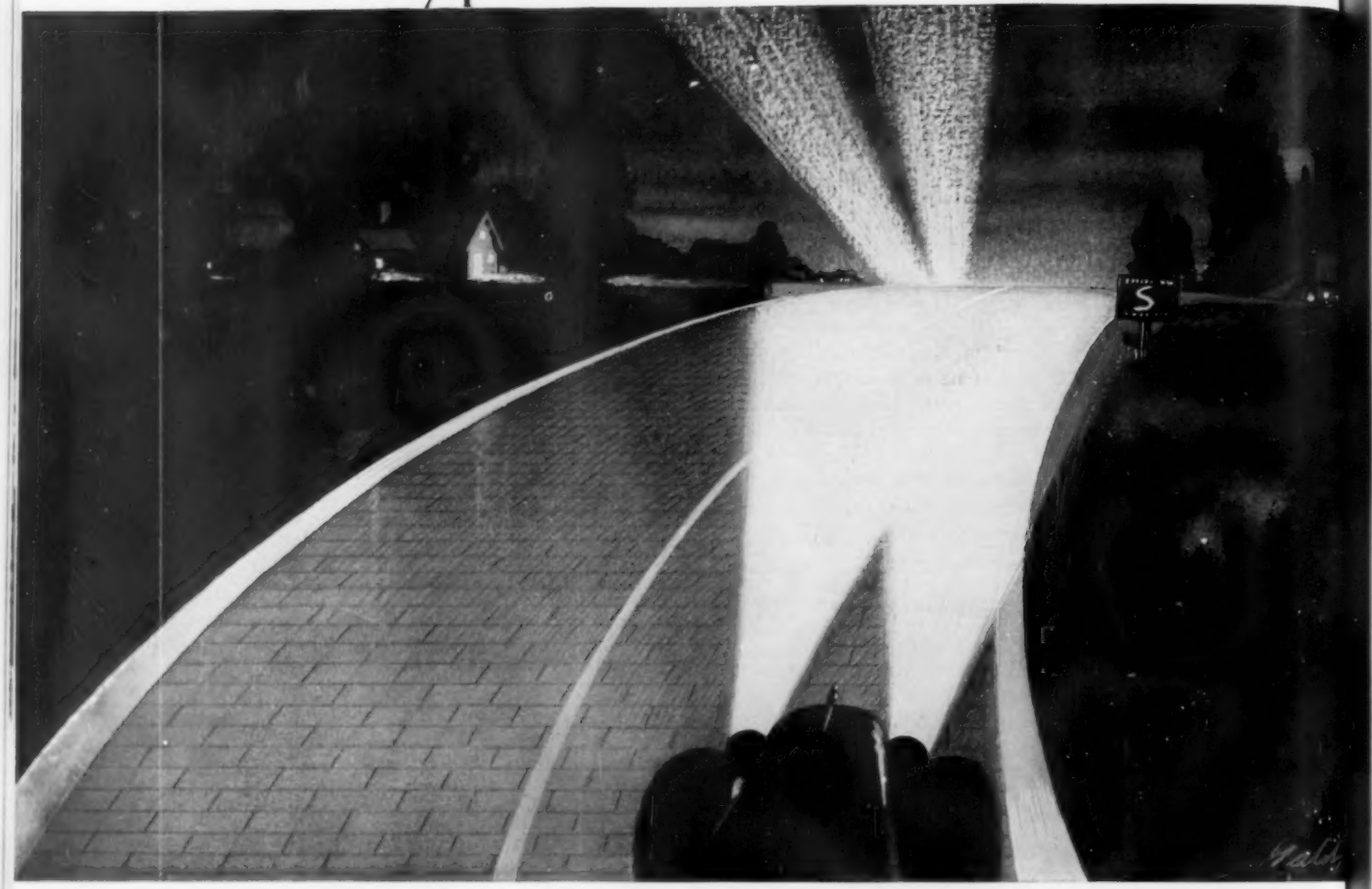
Equipment consists of two 2,500-kw Westinghouse turbo-generators installed in 1935, one 5,000-kw General Electric turbo-generator in 1932, one 1,250-kw General Electric water-wheel generator installed in 1925, and one 2,500-kva Westinghouse water-wheel generator in 1927.

Peak load for the hour in 1936 was 7,900 kw.

Crook, 250 population, has two Fairbanks-Morse diesel engines of 25 and 12½ kw. Production totaled 24,000 kw, of which 5,475 kw was used by the municipality. Revenue amounted to $2,400, expenses $2,200, surplus $200. Thus the cost per kwh was 0.9167 cents.

The *Flagler* municipal power plant, Ernest Miller, Manager, produced 213,820 kwh in the last fiscal year with two Fairbanks-Morse diesel engines, a 120-kw and a 75-kw, installed in 1920. The municipality uses 73,351 kwh and pays $2,200. Line losses amount to 13 per cent. The unit cost is 4.3 cents per kwh. The population is 540.

MORE HOLIDAYS for DEATH!



● Among the many factors determining highway safety is the pavement surface itself. Brick pavements aid the public in safe driving. Brick are soft-toned in color. There is no glare to tire daytime vision. There is excellent visibility at night.

The flat crown and true even surface of a brick pavement is ideal for modern traffic. The wire-cut surface has a skid-resistive texture which is completely exposed before the pavement is open to use.

Build the safest possible roads and streets. Use brick on new and resurface jobs. In addition to its safety for users, brick has the lowest cost per year of any pavement ever built. National Paving Brick Association (Affiliated with Structural Clay Products, Inc.) National Press Building, Washington, D. C.

EASY ON THE EYES

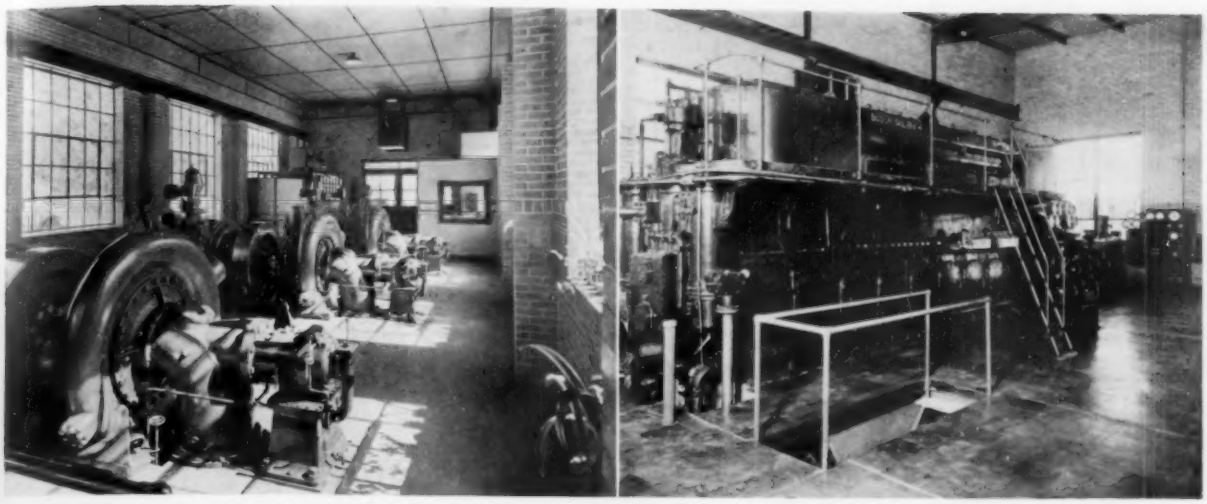
Brick is a safe pavement day or night. There is no glare—less eyestrain. It picks up the illumination from the headlights and shows a sharp definition of the edge of the road.

SKID-RESISTING SURFACE

Brick pavements have a high coefficient of traction. Use brick on highways and on both business and residential streets.

BRICK

THE SAFE PAVEMENT FOR MOTORIZED TRAFFIC



INTERIOR OF HYDROELECTRIC AND DIESEL GENERATING PLANTS AT LOVELAND, COLO.
The hydro plant (at left), constructed in 1924, contains three 400-hp turbines driving 300-kw generators. At right is the diesel plant, with a 900-hp engine direct-connected to a 600-kw generator

Total revenue totaled $10,367; expenses $8,001; surplus $2,366.

The *Fleming* municipal light plant, Hugh Boyd, Superintendent, has two Fairbanks-Morse diesels, a 32-kw and a 60-kw, installed in 1921, that produced 80,000 kwh for this village of 365 population.

The *Fort Collins* Light and Power Department, G. H. Palmes, Manager, has two 1,500-kw Westinghouse turbo-generators, installed in 1936, and a load factor of 1,925 kw.

Net production for the first six months is estimated at 5,000,000 kwh. The municipality used 530,000 kwh and paid $18,000. Income amounted to $200,000; expenses, $145,000; surplus, $55,000. The plant has now been on the line for ten months. Population, 11,489.

The *Lamar* Light Department, O. B. Putnam, Superintendent, is equipped with two 500-kw G.E. steam turbines, installed in 1920, and one 2,000-kw American Brown Boveri turbine of 1930. They generated 4,200,000 kwh in the fiscal year to December 25, 1936, of which the municipality used 317,500 kwh free of charge. The total cost was 1.97 cents per kwh sold. Income, $113,355; expenses, $61,214; surplus, $52,141. It is possible that the capacity here will be increased. The population of Lamar is 4,233.

During the last 14 years, since 1925, the Electrical Department of the city of *Loveland* (population 5,506) has doubled sales and numbers of customers, increased earnings from $65,211 to $94,193, and paid bonds aggregating $369,000, with only $50,000 still due. There is, however, an interest balance of $195,100 to be paid. During this period, operating expenses have totaled about $300,000 and earnings a little over one million dollars. Since 1931, annual payments to the city's general fund have averaged $9,583. Ray Smith, Manager, describes the property as follows:

There are two plants, a hydro and a diesel. In 1924, three 400-hp S. Morgan Smith turbines direct-connected to 300-kw General Electric generators were installed. Power is furnished by a concrete dam 90 feet long and 10 feet high, with frames for raising the dam another 10 feet in the winter season. There are 9,019 feet of 36-inch pipe line, two outdoor type 2,300- to 22,000-volt substations, and 13.8 miles of 22,000-volt transmission lines.

In 1927, a 900-hp Busch-Sulzer Bros., diesel engine connected to a 600-kw G.E. generator was installed, cooled by city water to sewer.

The entire electric property is valued at $587,997 less depreciation figured at $259,162. In the year 1936, the diesel plant generated 341,317 kwh; the hydro plant 2,554,500 kwh. The stations used 106,693 kwh.

Domestic rates per kwh are 10 cents for the first 10 kwh; 6 cents for the next 25; 3 cents for the next 35; 2 cents for the next 130; 1½ cents for over 200 kwh; with $1 minimum. Commercial rates are 10 to 2 cents; power rates range from 5 cents to 1½ cents; both with $1 monthly minimum.

Load and revenue are distributed as follows:

Residence	Average Rate	KWH	Revenue
Residence	$0.05813	676,533	$39,330
Business	.0557	558,285	31,144
Street lighting	.01713	484,347	8,294
Power	.03546	371,925	13,191
Cooking, heating	.02224	95,416	2,194
	$0.043033	2,186,506	$94,153

Expenses in 1936 amounted to $32,935 for operation and maintenance, $4,500 for interest, $966 for debt discount; total, $38,401 plus $24,726 for depreciation; grand total, $63,127, which subtracted from gross earnings of $94,093 left a net surplus of $31,066.

Yuma, 1,360 population, is equipped with three small steam turbines, a 120-kw and a 72-kw installed by Chuse Engine Co. in 1920, and a 200-kw turbine installed by the Skinner Engine Co. in 1930. Gross output for the last fiscal year was 507,100 kwh, of which the municipality used 154,150 kwh and paid $4,624. Line losses amounted to 6.6 per cent. Total income, $27,418; expenses, $18,824; surplus, $8,594. This information was furnished by T. H. Harris, Town Clerk.

Profitable Municipal Electric Utilities

"Revenues from electricity are paying an increasing proportion of the expense of municipal government." . . .

The rest of the article and a new table of Municipal Electric Earnings by 500 home-owned utilities are in The Municipal Index for 1937, 470 Fourth Avenue, New York. Have you received your copy?

Sign of Need - for the Lightness of Aluminum!

Time and traffic present their problems squarely: the bridge which is no longer adequate demands decisive, practical action at once. Light, strong alloys of Alcoa Aluminum may be the direct answer. Applied in the floor system, the walkways and rails, Aluminum can in many cases so reduce dead load that original serviceability is restored, and at an expenditure which is only a fraction of the cost of a new structure. Years of usefulness are added.

This way to "Save the Structure" is sound engineering. In actual bridges already saved by Aluminum's lightness, these benefits are observed: 1. Traffic capacity increased; 2. Permissible live load increased; 3. Roadway surface improved; 4. Stresses reduced. It is possible to accomplish the reconstruction with only partial interruption of existing traffic. ALUMINUM COMPANY OF AMERICA, 2172 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA ALUMINUM

Do you mention THE AMERICAN CITY? Please do.

Interstate Sanitation Commission Starts Work on Pollution Abatement

New York and New Jersey Confident that Coastal and Harbor Waters Can Be Cleaned Up

THE Tri-State Treaty Commission was created in 1931 by the states of New York, New Jersey and Connecticut to study and make recommendations concerning the abatement of pollution in New York harbor. The following year it submitted a report which included a form of Tri-State Compact for the control and abatement of pollution in New York harbor and adjacent coastal and tributary waters. This recommended Compact, providing for the joint action of New Jersey, New York and Connecticut, was the basis upon which the present Interstate Sanitation Commission was established.

The present Compact became effective on January 24, 1936, when it was signed by Commissioners representing New Jersey and New York. At that time the Connecticut Legislature was not in session; however, it has the matter under consideration at the present time.

The tremendous growth of population and the development of the territory surrounding and adjacent to New York harbor in recent years has resulted in increasingly serious pollution of the harbor and adjacent coastal and tributary waters. This pollution constitutes a grave menace to the health, welfare and recreational facilities of the people in this area, and occasions a severe economic loss.

The Compact between the states of New York and New Jersey provides for the establishment of an Interstate Sanitation District. This District comprises the water area from Sandy Hook, New Jersey, up to the northerly lines of Rockland and Westchester Counties where they intersect the Hudson River at Bear Mountain Bridge. It also includes all the intervening waters to Port Jefferson on Long Island Sound as well as to Fire Island on the Atlantic Ocean front.

The Compact provides for the division of all the waters within the District into two classifications:

Class A.—In which the designated water areas are expected to be used primarily for recreational purposes, shellfish culture or the development of fish life.

Class B.—In which the designated water areas are *not* expected to be used primarily for recreational purposes, shellfish culture or the development of fish life.

The Commission is required to hold hearings to obtain public opinion concerning the expected use that will be made of the various water areas. As a result of these hearings and reports from its Engineer, the Commission will group the District waters into classes. At the present time the Commissioners are holding hearings regarding the waters of Kill van Kull.

Sewage Effluent Standards

The Compact also establishes standards which must be attained by sewage effluent entering the waters of the District. Where the waters are used primarily for industrial purposes, the standards provide that the effluent shall be so treated as to remove all evidence of floating material; and where, in the opinion of the Commission, local conditions warrant, further treatment may be required to avoid the formation of sludge deposits. At the present time untreated sewage effluent enters the waters of the District at certain places causing disgusting conditions which will not be tolerated by enlightened citizens in this progressive age.

In ferry slips and under piers at many points in the black, repulsive-appearing waters of New York harbor, gas bubbles are seen rising to the surface. These bubbles are usually caused by the formation of gas in the decomposition of sewage sludge which has settled to the bottom. From time to time masses of this black sludge break loose from the bottom and find their way to the surface of the water, creating both an unpleasant appearance and frequently obnoxious odors.

If the provisions of the Compact are to be fulfilled, not only these conditions but the causes of these conditions must be eradicated. Even the waters which are used solely for industrial purposes should at least be free from obnoxious floating matter, from unsavory discolorations, and from any odor and untreated pollution.

The standards established for waters used for recreational purposes are more exacting than for waters not so used. Any sewage before entering waters classified for recreational purposes must have been so treated as to materially improve its qualities. Compliance with the terms of the Compact will so free the recreational waters of the District from pollution that bathing beaches may be used by bathers without fear of disease from polluting sources.

Surveys and Personnel

In addition to the present holding of hearings for the determination of classifications for the water areas, surveys are under way to bring up to date all factual data regarding the sewage pollution in this area. With the advance of summer weather, the Commission's forces will begin making physical, chemical and bacteriological analyses of water and sewage effluents within the Interstate Sanitation District.

The New York Commissioners of the Interstate Sanitation Commission are Joseph P. Day, William F. Hofman, J. Noel Macy, Jeremiah D. Maguire, and Dr. E. S. Godfrey, Jr. The New Jersey Commissioners are J. Lester Eisner, J. Spencer Smith, Joseph N. Fowler, William C. Cope, and George C. Warren, Jr. J. Raymond Tiffany is Counsel, and Thomas K. Smith Associate Counsel for the Commission; and Seth G. Hess is Chief Engineer in charge of all surveys, studies and reports other than those pertaining to legal matters.

Today, intersection of Martin and Main Streets, Kilgore, Texas. These six and four lane concrete pavements effectively lifted the town out of the mud.

In 1932, Kilgore's streets looked like this. Even tractors bogged down.

IN FOUR SHORT YEARS, KILGORE CLIMBED OUT OF THE MUD ON TO

CONCRETE

As recently as 1932, busy Kilgore in a new Texas oil field, was wallowing in a sea of mud. Winter rains made streets almost impassable. Kilgore decided, as have hundreds of other progressive communities, that concrete streets and entrance highways were a "first" in the public works program.

Now Kilgore's principal streets are clean, smooth-riding concrete 40 to 56 feet wide. And paving has already begun on the remaining secondary streets.

Concrete actually costs less to build than other pavements of equal load carrying capacity and its low maintenance costs help preserve street funds for needed new construction.

When you pave with concrete, the job is *done*.

PORTLAND CEMENT ASSOCIATION
Dept. 5-4, 33 W. Grand Avenue, Chicago, Illinois

During May we hope you will remember to mention THE AMERICAN CITY.

The New York Police Department

By LEWIS J. VALENTINE
Police Commissioner, New York City

THE first essential of an efficient police administration is organization, and the fundamental unit of police control is the patrol precinct.

Foot patrol by the man on post can be supplemented to advantage, but it can never be dispensed with. It is only by the intimate observations and contacts of the patrolman on post that crime can be successfully prevented and the fullest measure of protection to life and property afforded.

The foot patrolman observes and investigates suspicious persons and circumstances. He inspects premises at night to make certain they are secure; protects pedestrians and children against injury; polices school crossings; guards banks, payrolls and other valuable property against robbery and larceny, and gains valuable information concerning crimes planned and perpetrated and those responsible for them. He is our eyes and our ears. He is lawyer, doctor, social worker and confidant to those in trouble. He is the only living symbol of government that 98 per cent of our people ever see. His presence in uniform is an essential to public security.

Radio Motor Patrol

The radio motor patrol supplements the foot patrol force in the same manner as do motorcycle and mounted patrol. Without radio motor patrol service it would be impossible adequately to police the city of New York. Yet we are satisfied that we have not utilized every possibility that radio presents. In this connection we are experimenting with the two-way radio.

Traffic

In the city of New York the Police Commissioner is responsible for the regulation of vehicular and pedestrian traffic. With more than 800,000 automobiles registered in the city—in addition to the thousands of other vehicles visiting us every day—you can appreciate some of our traffic problems, particularly on the long, narrow island of Manhattan. We have a Traffic Division, directed by the First Deputy and commanded by a deputy chief inspector responsible for the efficiency and the discipline of the personnel of specially selected and trained men, for the enforcement of all laws and ordinances governing the regulation of street traffic. Units of this Division include the traffic districts, bridge district, fifteen traffic precincts, and motorcycle and mounted contingents. The latter two are important in the success of this division.

Today New York City ranks first in the United States in the reduction of street accidents resulting in fatalities and personal injuries.

Emergency Service

The Emergency Service Division consists of 500 men and 20 emergency trucks equipped with every conceivable device from machine gun to 15-ton jack. The equipment for this Division might be considered expensive to purchase and maintain, each truck, fully equipped, representing an investment of about $20,000, but it has paid for itself many times over in expeditious, intelligent and effective service.

Communications Service

Our Telegraph Bureau is divided into five borough branch units whereat telephone switchboard service is maintained for the transaction of police business by telephone. Teletype communication is maintained throughout the entire Department, and facilities are provided for communication with state, county and municipal police agencies of New York and adjacent states. Radio broadcasts are transmitted from the Telegraph Bureau to the force on patrol in radio-equipped automobile units. We maintain a wireless telegraph station in the main office in Manhattan headquarters, to receive and transmit messages between headquarters and other beats, and other law-enforcement agencies.

The Telegraph Bureau also maintains a truck equipped with sound amplifiers. We utilize this to advantage upon occasions when large crowds of people assemble, such as at the football games at Yankee Stadium and the Polo Grounds, the World Series games, or on any other occasion when it may be necessary for the commanding officer at the scene to advise the public about measures taken for their safety. This truck also makes it possible for him to issue commands to the members of his force assigned at the scene.

Motor Transport Maintenance Division

This Division is responsible for the proper and efficient maintenance and repair of all Police Department motor equipment. This includes 1,106 vehicles of all kinds, from the motorcycle and radio car to the emergency and huge transport trucks.

Engineering Bureau

This is under the direction of the Chief Engineer, who has supervision over the extension, installation and maintenance of electrical service; extension and maintenance of traffic-signal lights, manufacture and repair of traffic signals, signs, stanchions and markers.

When it is considered that there are more than 100,000 separate pieces of traffic equipment and more than 5,000 miles of white lines upon the streets of the city of New York, and that just as soon as a piece of equipment becomes damaged or unsightly we require its removal and replacement, it becomes evident how essential this Bureau is to us.

FOR QUALITY TRUCKS AT LOW COST SEE GMC

Truck buyers in your industry and in every other industry are inspecting, comparing and then selecting GMC trucks. And for very convincing reasons! Consider the extra value in the GMC 1½-2 ton range, for instance. Available in either conventional or cab-over-engine types, these big, rugged GMC's have such desirable features as advanced stream-style with exclusive "dual-tone" color design roomy, comfortable, all-steel "Helmet-Top" cabs, increased load space, safe, sure GMR hydraulic brakes of improved design, stabilized front end, protective full-pressure engine lubrication, extra rugged full-floating rear axle and dozens of other important advantages that definitely assure improved performance, greater dependability and increased economy . . . You, too, are urged to see GMC for quality at low cost—the 1½ ton type or any other size from ½ to 12 tons that fits your needs. All are priced low on any basis of comparison. All are exceptional values.

QUALITY AT PRICES
LOWER THAN AVERAGE

Time payments through our own Y. M. A. C. Plan at lowest available rates

GENERAL MOTORS TRUCKS & TRAILERS

GENERAL MOTORS TRUCK & COACH
DIVISION OF
YELLOW TRUCK & COACH MANUFACTURING COMPANY, PONTIAC, MICHIGAN

Forward Steps

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Modern Low-Rent Housing to Replace Insanitary Slum

JACKSONVILLE, FLA.—The $1,000,000 Durkeeville housing project, now nearing completion in Jacksonville, is one of 51 projects being built by the Housing Division of the PWA in 36 cities of the United States. This project, when completed, will provide homes and recreational areas for 215 families from the low-income group. The removal of this number of families from inadequate housing in Jacksonville will be the initial forward step in correcting a condition which now causes a concentration of 32 per cent of the major and social crime cases, 13 per cent of the juvenile crime cases, 31 per cent of the syphilis cases and 27 per cent of the tuberculosis cases in a slum section comprising less than 1.8 per cent of the city's areas—a condition which causes an annual tax deficit of $55,200 per square mile in the slum area when only two items of municipal expenditure, police and fire, are considered.

This project is the culmination of the efforts of the Municipal Housing Board of Jacksonville appointed by Mayor John T. Alsop, Jr., in March, 1934. The 20-acre site, purchased by the Housing Division, is occupied by 34 buildings, which incorporate 217 row houses. Two houses will be used for social service. An administration building and a service building are also provided.

The future of low-rent housing in the state of Florida is largely dependent upon enactment of suitable Housing Authority legislation in the next session of the State Legislature. Active interest by municipal officials in the cutting-out of needless municipal expenditures for maintaining slum sections gives assurance that our undesirable city areas and their undesirable occupants will be eliminated.

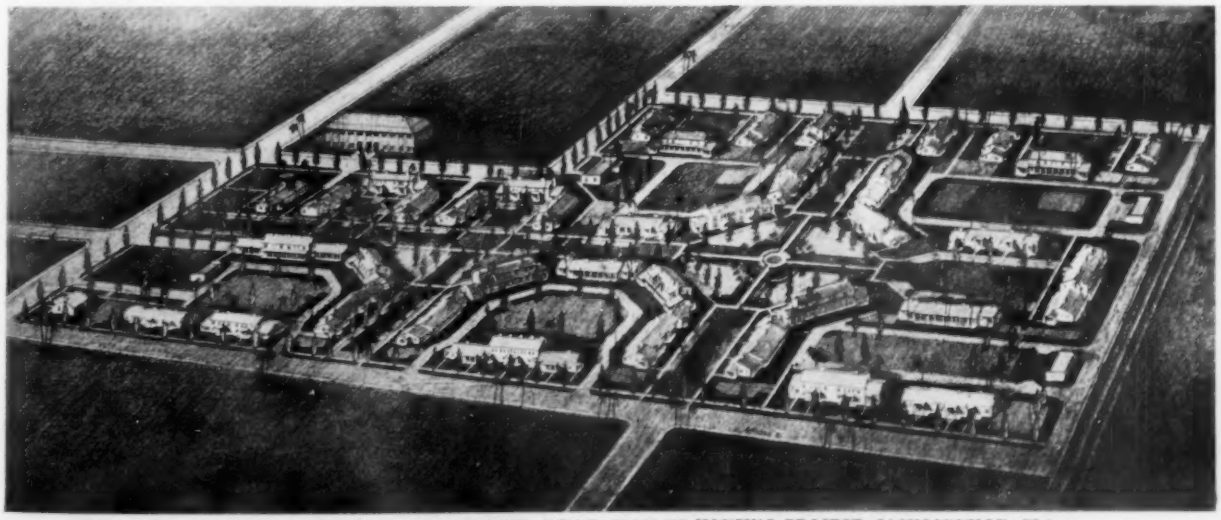
RAY O. EDWARDS,
District Manager, Housing Division, PWA.

JACKSONVILLE'S SLUM AREA AS IT WAS

Wading Pools for Indianapolis Children

INDIANAPOLIS, IND.—The City Plan Commission of Indianapolis is completing a WPA project which will give the city its twelfth complete and sanitary wading pool. These twelve pools have been of great benefit to the children of the city, and were much appreciated by the parents in the homes during the hot summer of 1936.

The first of the pools was built from gravel salvaged from flood-prevention projects, and from old pipe and fittings left over from various other city undertakings. The total cost of this one pool was $210, which was merely the cost of the cement. The pool proved so popular, and we had so many requests for additional pools, that we prepared a project and submitted it to the Works Progress Administration on August 14, 1935, for twelve additional pools, specifying only



ARCHITECT'S SKETCH OF DURKEEVILLE, PWA'S $1,000,000 HOUSING PROJECT, JACKSONVILLE, FLA.
One- and two-story group houses in a park-like setting providing ample yards and garden and recreational space

"SPRING—*tra la la*"

"BASEBALL" . . . . . .
"THE OLD SWIMMING HOLE"
"PEN KNIFE" . . . . . .
"HIKES" . . . . . .
"SULPHUR and MOLASSES" etc.

All typical of Spring—the time of the year when poets tell us a young man's fancy turns to love, etc.

But Spring also brings to the Plant Operator its full share of seasonal troubles. April

Showers not only bring forth May Flowers but also increased water flow — spring floods — and a general breaking up of ice, all of these resulting in increased taste and odor problems.

Seasonal road repair work, particularly involving the use of tar products, usually result in phenolic tastes being contributed to the water supply.

(1) May we, therefore, suggest that all plants be fully prepared for increased sterilization required through the application of sufficient chlorine.

(2) That sufficient NUCHAR (Activated Carbon) be fed to adsorb these tastes and odors and therefore result in the furnishing of a palatable water.

The cost is so little that you will enhance your consumer relationship through so doing.

"MAKE YOUR PLANS NOW TO ATTEND THE 57TH ANNUAL CONVENTION OF THE AMERICAN WATER WORKS ASSOCIATION TO BE HELD JUNE 7-11, 1937, AT THE HOTEL STATLER, BUFFALO, NEW YORK."

230 Park Avenue
New York, N. Y.

417 Schofield Building
Cleveland - - - Ohio

205 West Wacker Drive
Chicago - - - Illinois

INDUSTRIAL CHEMICAL SALES DIVISION
WEST VIRGINIA PULP AND PAPER COMPANY

ONE OF THE NEW CONCRETE WADING POOLS IN INDIANAPOLIS

new material in the construction, all to be financed by the Federal Government and the city of Indianapolis, under the supervision of the City Plan Commission. The total cost of the project was $30,689.22, including fencing, concrete plumbing and reinforcement.

The pools were designed and built so that they could be used as ice skating grounds during the winter, without damage to the construction. A chlorinator was built at a cost of $28, using water pressure as a feed, with needle-valve adjustment to control the amount of chlorination and an HTH powder solution.

The project was approved on September 5, 1935, and work was started immediately. By June nine pools were completed, with the exception of placing the fence around them, and they were opened to the public. Since all the pools are on improved city property, owned by the School City or the Park Board, we were under obligations to construct them with as little discomfort to the public as possible. We therefore used central plant mixed concrete.

In an effort to keep the pools as clean as possible, a foot-bath with a spray was placed at the gate leading into each pool. To help keep the walks around the pool clean, we designed a very low curb, so that the water in splashing would over-run the curb and flow onto the walks, and, being chlorinated, would sterilize them. To catch the surplus water, there is a small drip drain around the walks, starting at zero grade and running to a depth of 2½ inches, with rounded corners, and emptying just ahead of the syphon into the sewer proper. This drain was easily made with the grout that was used to place the flagstone, and necessitated no additional cost. The walks slope away from the pool at an easy grade, so as not to be dangerous for the children, and this tends to wash away any refuse that gets into the pool. The low curb and the water starting at a depth of only ½-inch invite the smaller children to enter the pool without the least hesitation, and even small babies are regular wading customers.

A syphon loop with four outlets, spaced in the four different ends, with a by-pass in the loop to regulate the height of the water, has greatly aided the circulation in the pools and has acted as a cleanser of the surface of the water. The pools are chlorinated from the bottom. The drains are placed under the water at points where the most bacteria usually form, also where they will be least affected by the children's placing paper or other articles over them to stop them up. All corners are rounded by a 3-inch radius, so as not to injure anyone in a fall. There is nothing above elevation to stumble into when running around the walks. The maximum depth is 20 inches, making it impossible for anyone to drown.

Having operated the pools throughout the summer months, we have found that the purity of the water has met all requirements of both the City and the State Board of Health, and no complaints have been received regarding the impurity of the water.

The attendance at the pools since the opening of the first one, on June 20, through the week of August 15, was approximately 83,800. There is no possible way to estimate the number of lives saved during the summer months. The pools have helped keep the children off the streets, have given them recreation and relief from heat. No accidents were reported at any of the pools during the entire summer.

The following list shows the materials and quantities used for each pool, with costs:

WADING-POOL MATERIAL

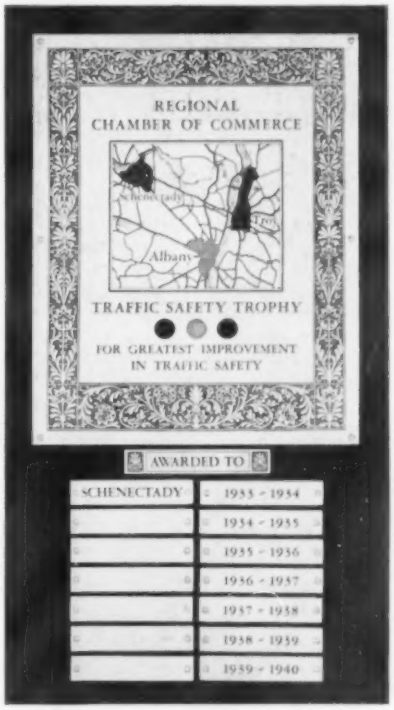
Plumbing	$250.00
Concrete—70 yds. @ $6.65 (central plant mix)	465.50
1—18" x 24" stone	2.00
Lumber	40.00
Cement—3½ bbl. @ $2.31 for pit, grout and pointing	8.05
Expansion—pitch, 250 lbs. @ $.0275	6.90
Wire mesh—3,000 sq. ft. 66-66 40#	36.60
1 gal. paint	2.75
3 sacks cement paint @ $1.85	5.55
266 ft. fence @ .70	186.20
1 6-ft. gate	7.50
TOTAL	$1,011.05

VAL McLEAY,
Engineer, Indianapolis City Plan Commission.

Regional Cooperation for Traffic Safety

EARLY in 1933, members of the Regional Chamber of Commerce, made up of representatives of the Chambers of Commerce of Albany, Schenectady, Troy, Cohoes, Rensselaer, and Watervliet, becoming interested in the high liability insurance rates in that area, formed Community Safety Councils in Albany, Schenectady and Troy and have been cooperating to improve traffic conditions and reduce accidents.

These councils put pressure on enforcement authorities and used the newspapers in a publicity campaign to interest the public in the accident-rate problem. In Schenectady City and County over 300 signs, designed and painted by high-school boys, were placed by the roadside. To further stimulate activity, the Regional Chamber offered a trophy to be contested for by the three councils, the basis of competition being the percentage reduction in the number of persons killed and injured from the average figure of the four calendar years immediately preceding the year in which each contest starts.



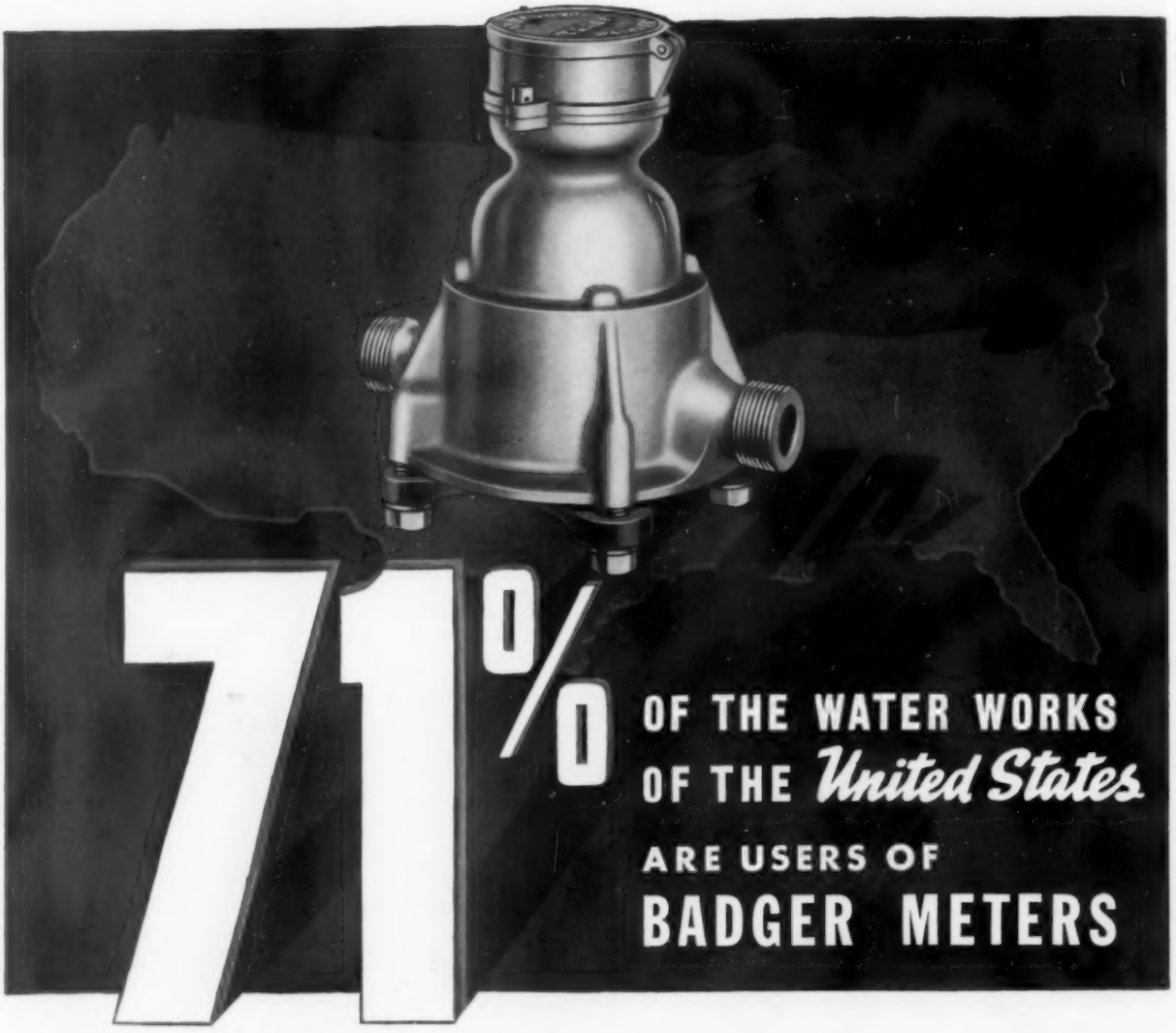
The following is the yearly record:

PERSONS KILLED AND INJURED IN MOTOR VEHICLE ACCIDENTS

	Albany	Schenectady	Troy
1932	986	612	481
1933	960	545	529
1934	971	604	561
1935	970	653	481
1936	868	492	370

Automobile liability insurance rates have been gradually reduced in each of these areas.

G. E. SANFORD,
Vice-President, Schenectady Safety Council.



More than five billions of dollars are invested in the nation's water works facilities . . . to provide for an average daily per capita consumption of water in the United States of 100 gallons.

And 71% of the most important systems have purchased Badger Meters for their known dependability and economy of performance. Such amazing majority of acceptance of Badger Meters has been won because Badger Meters deliver service. They take little "time out" for inspection and repairs . . . they emphasize economy of operation . . . they produce maximum revenue by accurate operation. The smallest trickle or maximum capacity flow is faithfully recorded by Badger Disc Meters . . . which have the largest capacities, size for size, with the least absorption of pressure.

• • •

Badger Meters on your lines assure Durability . . . Large Capacity . . . Extreme Accuracy . . . Minimum Maintenance . . . Low Pressure Absorption.

BADGER METER MFG. COMPANY, MILWAUKEE, WIS.

Branch Offices: New York City · Tampa, Fla. · Seattle, Wash. Savannah, Ga. · Kansas City, Mo. · Marshalltown, Iowa · Los Angeles, Calif. · Chicago, Ill. · Waco, Texas · Philadelphia, Pa.

The Amended Charter of Memphis

MEMPHIS, TENN.—The city of Memphis began on May 1 to operate an amended charter providing for reorganization of the government to promote greater efficiency. The amendment involves the first major changes in allocation of departmental functions since the commission form of government was adopted by this city in 1909.

The office of City Clerk has been abolished. In his stead will be the City Comptroller, elected by the Board of Commissioners upon nomination of the Mayor, for a two-year term. He will have two deputy comptrollers, one assuming the usual functions of a city clerk and the other designated as chief accountant.

The Comptroller will supervise and control the general accounts of the city, keep records showing the financial operations and condition of the city, its property, assets, claims and liabilities, and all expenditures authorized. He is custodian of the city's various fiscal papers, bonds, and documents. It is his duty to coordinate the annual budget and to see that no department of the city government exceeds its budget during the year. No expenditure not authorized in a departmental budget can be undertaken without a resolution passed by the Board of Commissioners.

During the administration of Mayor Watkins Overton, the growth of Memphis has presented new problems which required creation of a number of citizen commissions and boards to facilitate progress, as well as a few new city government bureaus. The Department of Mayor and Public Affairs and Health became cumbersome with these added bureaus and boards. The name has been changed and is now Department of Administration and Health, including the Mayor's Office, Comptroller's Office, Auditor, Law, Purchasing Agent, Health, Personnel and Efficiency, City Planning, and City Beautiful Commission.

The Department of Accounts, Finances and Revenues has been changed to the Department of Finances and Institutions. Besides the City Treasurer, Delinquent Tax Collector, Tax Assessor, Collector of Licenses and Privileges, and Board of Equalization, this department now includes several agencies formerly under the Mayor: the Municipal Airport, Auditorium and Market Commission, Juvenile Court, Oakville Sanatorium, and John Gaston Hospital.

The Department of Fire and Police is now the Department of Public Safety. Besides fire, police, motor vehicle inspection, and the dog pound, it has, as newly allotted functions, formerly under other departments, the City Court and Clerk, Inspector of Weights and Measures, Mendicancy Control, Fire and Police Pensions, Moving Picture Censors, and the Board of Examiners of Motion Picture Operators.

The Department of Streets, Bridges, and Sewers has been changed to the Department of Public Works. The Department of Public Utilities, Grounds and Buildings is now the Department of Public Service, including the Building Division, Utilities and Street Lights, Welfare Markets and Research, and the Art Academy.

RALPH A. PICARD,
Commissioner, Department of Public Service.

Hingham, a Tradition and a Warning

HINGHAM, MASS.—This is a small seacoast town of about 6,000 inhabitants. Settled 300 years ago, the town was built on the firm foundations of New England tradition, with independence as the cornerstone. Today this tradition still survives in the shadow of such monuments as the "Old Ship Church," built in 1681 as a challenge of liberal thought. It is an inborn force which has kept the town growing along harmonious lines in the past and which still does so to a remarkable degree.

Recently two outstanding examples of this force of the beauty and tradition of an old colonial town have sprung up. What could be more consistent than a filling station built on the lines of a Cape Cod cottage under an ancient buttonwood tree? Or what could better conform to the simplicity of an old town than a "Funeral Cottage" developed on colonial lines from an old barn and paint shop? But the success of these two examples does not cover the whole town. Several years ago the Planning Board proposed a zoning by-law for the purpose of safeguarding the harmony and beauty of which the town should be proud. Unfortunately, however, the independent citizens diagnosed the proposal as an infringement of their natural rights and consequently voted down the proposal in the annual town meetnig.

But freedom's reign is proving itself unable to cope with modern problems. On a new highway, running through meadows and stretches of wood, there is a sudden turning which reveals a rare view of the harbor with its blue water sparkling in the sunshine. Until the summer of 1936, the beauty of this scene was unspoiled. At that time, however, a new gasoline station was put up near the harbor with a disfiguring billboard which shouts its message over the landscape day and night. The appearance of this undesirable advertisement has stirred the citizens to action against its multiplication. On March 15, 1937, the

AT RIGHT—HINGHAM'S "COLONIAL" FILLING STATION

BELOW—NO MORE DISFIGURING BILLBOARDS FOR HINGHAM LIKE THAT SHOWN NEAR THE HARBOR

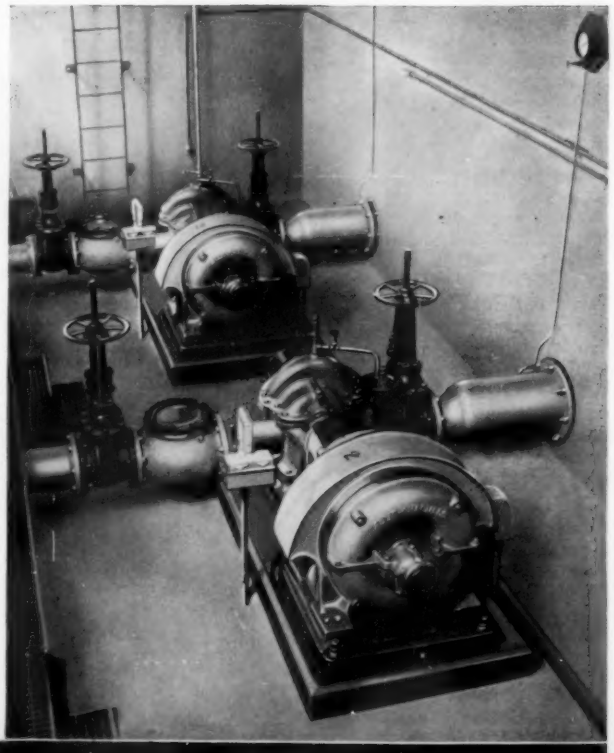
RESPONSIBILITY *Undivided*

Allis-Chalmers 54" x 48" Centrifugal Sewage Pumps, driven by Allis-Chalmers 2000 hp synchronous motors.

THESE ALLIS-CHALMERS pumping units are giving the utmost in actual pumping value per dollar of actual cost.

And like every pumping unit manufactured by Allis-Chalmers they were designed for the highest possible efficiency—and what's more, selected to operate at their maximum efficiency under the customers' own conditions.

Allis-Chalmers is the only company building complete pumping units, consisting of the centrifugal pump and any type of drive—*and that means there is no divided responsibility . . . there is no lack of coordination between pump and drive.*



Three Allis-Chalmers Centrifugal Pump Units for water supply, each rated 3500 gpm. 140 ft. head, and driven by an Allis-Chalmers 150 hp, drip proof, cage type induction motor.

CENTRIFUGAL PUMPS

ALLIS·CHALMERS

MILWAUKEE · WISCONSIN

town meeting adopted a billboard by-law, unanimously and without discussion. Also, a set of building laws which was defeated two years ago was placed again on the warrant by a group of contractors and was adopted after some heated argument. With this record of one town meeting, anyone is encouraged to believe that Hingham will carry on its traditions and eventually guard itself still further from the blight which has destroyed so many proud communities by the use of the modern method of protection, *zoning*.

AMY C. HOWARD.

Hingham, Mass.

Public Recreation

THE National Recreation Association reports that, in spite of some increases, cities have been lagging behind pre-depression expenditures for recreation as long as Federal and state funds are available. Federal employment projects have meant expansion of physical recreational facilities even to the point of threatening funds for leadership through their maintenance requirements. "Live . . . All Your Life," the 1936 Annual Report of the National Recreation Association, describes its widespread activities.

Major Civic Objectives for 1937

ANY lethargy which hung over city chambers of commerce during rigorous depression days is being shaken off. Signs of activity are cropping up everywhere, and in a few individual cities programs have reached admirable proportions. The projects are ambitious and of a wide variety, as indicated by the following lists of major civic objectives for 1937, received by THE AMERICAN CITY from representative chambers of commerce:

Amarillo, Texas

1. Water conservation for The Panhandle
2. Improved airport and lighted airway from Amarillo to Fort Worth
3. Highways
4. State hospital and veterans' hospital
5. Fair grounds
6. Better library facilities
7. Improved Palo Duro Park
8. Kenton Dam
9. Tax problems

Berkeley, Calif.

1. Cooperation toward development of civic center
2. Beautification of city prior to exposition; continued modernization of buildings
3. More adequate highway markers
4. Convenient transportation to exposition
5. Study of airport possibilities
6. Elimination of local traffic hazards
7. Conservation of natural resources
8. Development of Berkeley Fiesta
9. Development of greater civic consciousness
10. All-year sport and recreation program featuring Aquatic Park, Yacht Harbor, Regional Park

Bridgeport, Conn.

1. Municipal airport
2. Substitution of buses for trolleys
3. Improved highways

Canton, Ohio

1. Solution of the city auditorium problem
2. Abatement of smoke nuisance
3. Continuation of million-dollar park and playground program
4. Cooperation with city officials on city's water-supply program
5. Industrial development activities
6. Continued assistance in securing $250,000 athletic stadium
7. Publication of an attractively illustrated Canton booklet
8. Street and highway improvement
9. Expansion of safety and fire prevention activities
10. Continuation of agreement to curb dishonest solicitation schemes

Columbia, Mo.

1. Better mail facilities for Columbia
2. Community chest
3. Central bus depot or terminals
4. Storage tank for water whereby insurance rates would be reduced
5. Parks and playgrounds
6. Relief of traffic to and from stadium by one-way traffic, and provision of satisfactory and convenient parking facilities adjacent to stadium
7. Community auditorium
8. Widening of Highway 40 and beautification of shoulders from Highway 63 east to a point west of airport; and an outstanding approach to Columbia

Des Moines, Iowa

1. River beautification project
2. Program of new traffic arteries into and out of the city
3. Sewer system and disposal plant
4. Development of vocational education
5. Planning of a civic celebration for 1938 in conjunction with the celebration of Iowa's one hundredth anniversary
6. Better safety and fire records

East St. Louis, Ill.

1. Pressure for subways and elevated roadways to ease congestion and eliminate dangerous grade crossings

Jackson, Mich.

1. Industrial expansion
2. Promotion of city-county cooperation
3. Initiation of movement for municipally supported playground and recreation system
4. Encouragement of another east-and-west highway across the city
5. Continued discouragement of promiscuous solicitation of funds for unauthorized and unworthy causes
6. Promotion of interest in weekly open-air band concerts
7. Effort to organize an open-air theater
8. Organization of community sings
9. A more positive and effective Jackson community spirit

Lancaster, Pa.

1. Extension of Lancaster city limits
2. A zoning ordinance and a building code
3. Continuation of a municipal park program and a school extension program

Meadville, Pa.

1. Education of the public to the extent that the city government will authorize and install a water-softening plant in connection with the municipal water works
2. Completion of a $200,000 airport
3. Laying the ground work and making preparations for the observance of the city sesqui-centennial in 1938
4. The concreting of two highways

Minneapolis, Minn.

1. Completion of a sewage-disposal project
2. Completion of an extensive paving program
3. Continued work on a water-softening plant in connection with the municipal filtration plant

Portland, Ore.

1. "Master City Plan" program
2. Police pension study
3. Study of the Oregon initiative system
4. Study of the problem of restoration of teachers' salaries
5. Industrial survey of Oregon
6. Study of the effect upon the tax base of Oregon counties of the removal of lands from the tax roll through acquisition by state or Federal Government

Quincy, Mass.

1. A city-owned parking space
2. Widening and straightening of Cottage Avenue and Foster Street
3. Town river deepening
4. Formation of a Quincy Safety Council
5. Quincy Community Fund

Richmond, Va.

1. Work toward completion of the James River development, including deep-water terminals

Schenectady, N. Y.

1. Street improvement: maintenance, cleaning, improved approaches to city, names, signs, numbers
2. Parking area
3. Additional and improved recreational facilities
4. Support of city planning commission
5. Community music
6. Improved school facilities

South Bend, Ind.

1. Community advertising
2. Highway and street improvement
3. Public health expansion
4. Safety program

Williamsport, Pa.

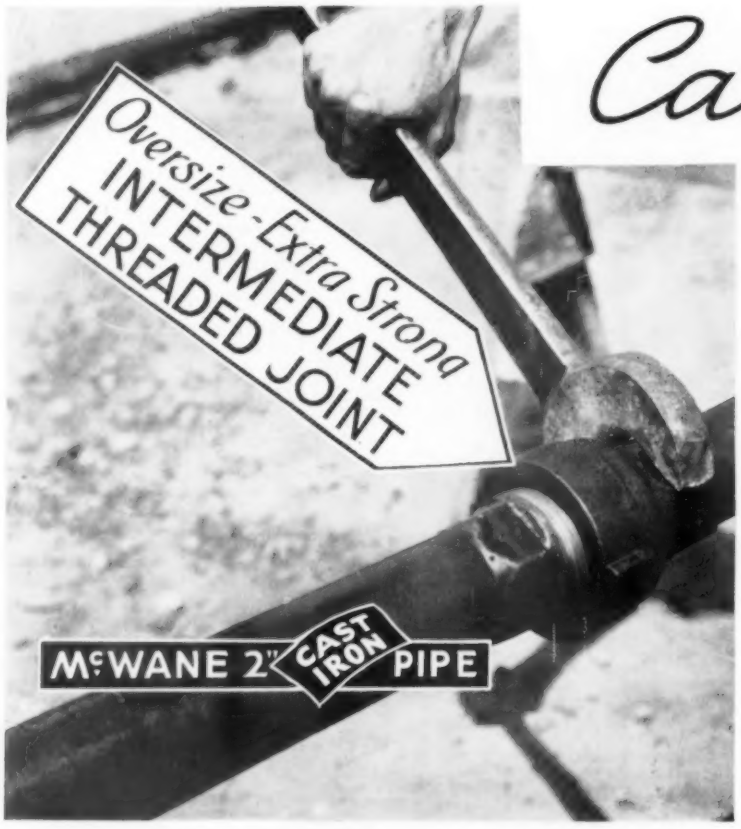
1. Study of budgets for county, city and school purposes by the Taxation Committee
2. Proposed amendments to the zoning ordinance
3. Sewage disposal and construction of an intercepting sewer
4. Erection of a sanitary hospital for the treatment of contagious diseases
5. Cooperation with the state and Federal agencies to secure the best plan for flood control of the West Branch of the Susquehanna River to prevent flood damages in Williamsport, and cooperation with local government units to find a way to finance local costs

Recent City Manager Appointments

WILLLIAM G. FINDLATER, former Director of the County Welfare Board, has been appointed City Manager of Flint, Mich., to succeed John M. Barringer.

Anthony Netkow, a former President of the School Board, has been appointed City Manager of Columbia Heights, Minn., to replace E. A. Huset.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.



Cast Iron

shows the same PERMANENCE and LOW COST IN

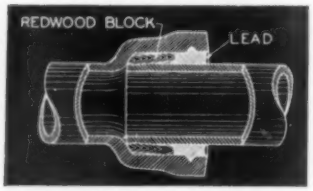
Small Mains

making it unnecessary to cut expensive pavements . . . eliminating replacements . . . reducing pumping costs . . . increasing revenues.

And what does this protection and permanence cost? Just a few pennies more per foot gives you McWane 2 in. **cast iron** pipe . . . gives you **rust-resisting** pipe instead of a short-lived substitute . . . gives you **100-year** mains . . . the same long life and low cost that **cast iron** gives you in your BIG mains. Which will you have . . . the **pennies** or the **permanence?**

McWANE PRECALKED JOINT

"Just Socket and Calk"



Here is the simple, self-tightening joint used with McWane 2" **cast iron** pipe from coast to coast. The Precalked materials are already in the bell . . easy to lay . . just socket and calk!

Sand Cast Inside and Outside

McWANE

CAST IRON PIPE COMPANY

BIRMINGHAM, ALA SIZES 1¼" THROUGH 12"

Chicago, Dallas, Denver, Kansas City, New York, Portland, Ore., Salt Lake City, San Francisco, Los Angeles.

over 25,000,000 FEET IN USE

The EDDY Valve

The Eddy Valve has a number of distinctive features which it will pay you to study. For example, the gates are free to revolve on the trunnions, so as not always to seat in the same position.

Write us for further details.

Also manufacturers of the well-known Eddy Hydrant

EDDY VALVE COMPANY

WATERFORD NEW YORK

Representatives

Jas. B. Clow & Sons, Chicago, Ill.

National Cast Iron Pipe Co., Birmingham, Ala.

Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 1 Park Ave., New York

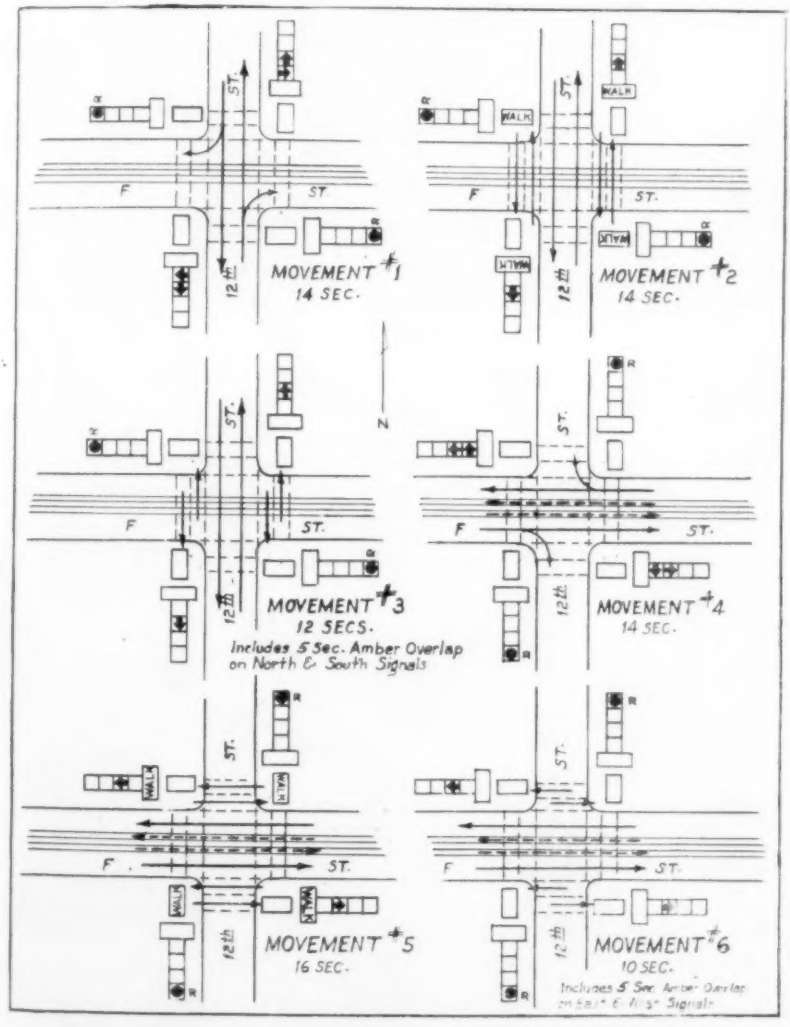
Paul L. Green, Chairman; John T. Gibala, Vice-Chairman; William C. Brandes, Otto K. Jelinik, Burton W. Marsh, William R. McConochie, E. J. McIlraith, Donald M. McNeil, D. Grant Mickle, Robert A. Mitchell, P. Taylor, Rayburn Hoffman

"Walk" Signals for Pedestrians

By W. A. VAN DUZER

Director of Vehicles and Traffic, Washington, D. C.

Last year 16,160 pedestrians were killed in the United States—44 per cent of all traffic fatalities. Of these, 4,640, or 29 per cent, were killed between intersections; 1,410, or 9 per cent, were children playing in the street; 3,170, or 20 per cent, were walking in the roadway; 1,760, or 11 per cent, were crossing at intersections where there was no signal; 1,100 or 7 per cent, were crossing at intersections against the signal; 440, or 3 per cent, were crossing diagonally at intersections, and 190, or 1.2 per cent, were crossing at intersections with the signal.



NO VEHICLE OR PEDESTRIAN TRAFFIC CROSSES ANY OTHER TRAFFIC

Signal on each corner, with top section red, second section amber, third section straight arrow, fourth section right arrow, and at bottom a WALK sign. Traffic is handled in six movements, three for each direction. In the first diagram, northbound and southbound vehicle traffic is permitted to move, and all pedestrian traffic is stopped, as is east-west vehicle traffic; in the second diagram, north-south pedestrian traffic is started and north-south vehicle right turns are stopped. At the beginning of the third movement, the WALK signs are put out so as to stop any more pedestrians from starting across. Five seconds before the end of the movement amber is shown, overlapping the straight arrow as an indication that north-south vehicle movement is about to be stopped

IN WASHINGTON, D. C.

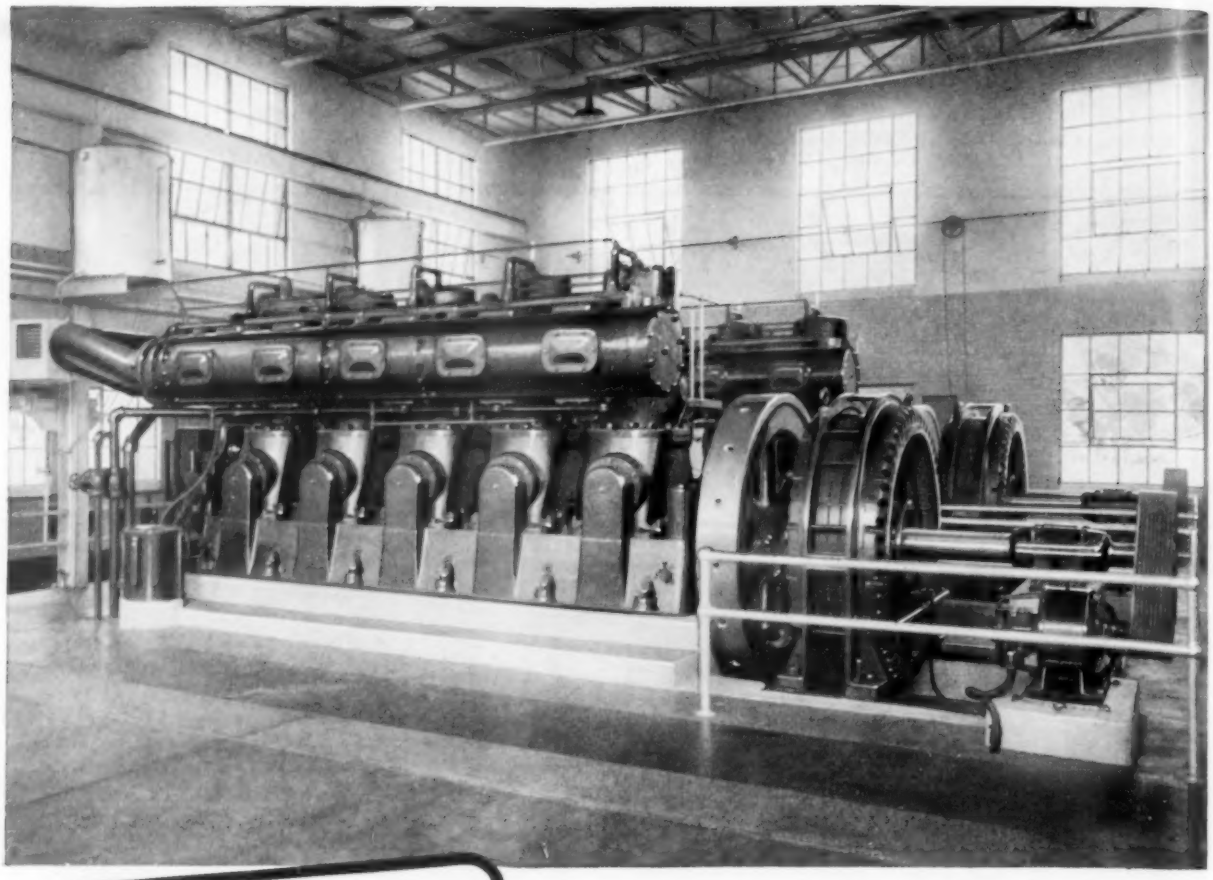
IN the District of Columbia during the first two months of 1937, there were twenty-eight people killed in traffic accidents, of whom twenty-four were pedestrians: thirteen were crossing the street not at crosswalks, five were crossing against red traffic-signal lights, one was walking in the street, and one was coasting on a street not closed for that purpose.

Who's to Blame?

From these figures it is obvious that automobile drivers were not at fault in many of these accidents, and that if automobile and pedestrian accidents are to be reduced it will be necessary that there be some cooperation between drivers and persons on foot. The drivers usually blame the pedestrians in such accidents, and the pedestrians blame the drivers. The average citizen when walking thinks that all motor-vehicle drivers should look out for him, but when Mr. Average Citizen is driving he thinks that all pedestrians should look out for themselves.

Every Man for Himself

We, as traffic officials, have devoted much time and effort to the development of traffic-control devices intended primarily to expedite the movement of traffic and the reduction of accidents, but under our present signal system neither motorists nor pedestrians are accorded exclusive right-of-way. We have established rules of the road for motorists and pedestrians which temporarily favor one or the other class under certain condi-



BURLINGTON, KANSAS
(POP. 2500)
MAKES
$10,000
YEARLY PROFIT
WITH PAIR OF
F-M DIESELS

IN Burlington, Kansas, two Fairbanks-Morse Diesel engines have just turned in a profit of ten thousand dollars to the city's treasury after the end of their first year's run. Ten thousand dollars that will go toward the payment of municipal obligations, to lower taxes for this town of 2500—and all this without a cent of cost to users of electric light and power. No rates have been raised.

If your city is burdened with high purchased power rates, if your homes and stores and industries are having to pay entirely too much for power, if your municipal treasury could use the savings that are being made by hundreds of other towns . . . then get the facts on F-M Diesels and what they are accomplishing. For Bulletin 3060—1, address Fairbanks, Morse & Co., 900 S. Wabash Avenue, Chicago, Ill. 34 branches at your service throughout the United States.

6998-OA98.119

FAIRBANKS MORSE

DIESEL ENGINES • ELECTRIC MACHINERY PUMPS • FAIRBANKS SCALES • RAILROAD EQUIPMENT • FARM EQUIPMENT • HOME APPLIANCES • HOUSEHOLD PRODUCTS • HEATING AND AIR CONDITIONING EQUIPMENT

Diesels

tions, but the Go period for motorists is generally the Go period for pedestrians. Motorists generally obey STOP and Go signals; pedestrians frequently disobey such signals. This is probably caused to a large extent by the fact that motorists are allowed to make right and left turns on a Go signal, which is also the Go signal for the pedestrian. It very frequently happens that there are so many right and left turns on a Go signal that the pedestrian is unable to cross the street on his proper signal. He is therefore placed in the position of waiting until all the turns have been completed before crossing, and then when he does cross he is sometimes caught in the middle of the street walking against proper signal.

It very frequently happens that when pedestrians have been caught in this position a number of times they decide that they will take their chances and cross against the signal or go to the middle of the block and cross. The facts show, however, that crossing between intersections is far more dangerous than crossing at intersections and that it is safer to cross with the signal than against it.

Present Signals Inadequate

Traffic signals as they are now designed cannot give proper protection both to motorists and to pedestrians. The average traffic in city streets moves at from 15 to 20 miles an hour through an intersection, or from 22 to 29 feet per second. The average pedestrian will walk about 7 feet per second, while the older pedestrian may not walk faster than 4 feet a second. Let us assume that the average intersection is 60 feet wide. The average automobile will clear this intersection in from two to three seconds. The average walker will take from nine to fifteen seconds to cross. Obviously, the clearance time sufficient for a motorist is entirely inadequate for the pedestrian.

"Walk" Signals Needed

By the installation of proper Walk signals, we should be able to do away with the possibility of having pedestrians caught on a red signal when in the middle of the street. In order to do this, however, it will be necessary at these locations to provide special turning signals for motor vehicles in order that there may be no interference with the pedestrian when he starts to walk across the street on his proper signal.

It was with the thought of giving the pedestrian sufficient time to cross in safety from one curb to the other that two trial installations of Walk signal lights were made in the city of Washington at 12th and F Streets and at 13th and F Streets, N.W., the heaviest two pedestrian intersections in the city. The average pedestrian traffic at 12th and F amounts to 6,201 pedestrians an hour, and at 13th and F some 6,749 pedestrians an hour.

At 13th and F Streets, N.W., all turns are prohibited, and at 12th and F Streets, N.W., left turns are prohibited and right turns are permitted on special signal. The diagram illustrates the method of control at the latter intersection.

Vehicular traffic is controlled by arrow signals, and the first indication following the red is a double-arrow indication permitting straight-through and right-turn traffic. After 14 seconds, the right arrow is turned off and the Walk indication appears. Pedestrians are told by signs to start only while the Walk signal shows. After the Walk signal is extinguished, sufficient time remains for a pedestrian walking at the rate of 4½ feet a second to cross the street before the signal changes to red.

These Walk signals are homemade, using letters 3 inches high with a stroke of 5/16-inch. The signals are painted gray, as are the painted portions of the glass, so as to approach the color of the unpainted portions of the glass. This gives a sharply defined WALK indication when burning, and the letters spelling WALK are scarcely discernible when dark.

The number of people who take advantage of these Walk signals is extremely disappointing. Two surveys of pedestrian observance of these signals returned the following results:

12TH AND F STREETS, N.W.

Signal Indication	May 20, 1936 Number	%	May 29, 1936 Number	%
Straight through and right-turn arrows	20,270	42.5	24,192	46.9
Walk and straight through arrow	12,938	27.1	14,081	27.3
Straight through arrow only	5,274	11.2	5,863	11.4
Red	9,161	19.2	7,442	14.4
Total	47,643	100	51,578	100

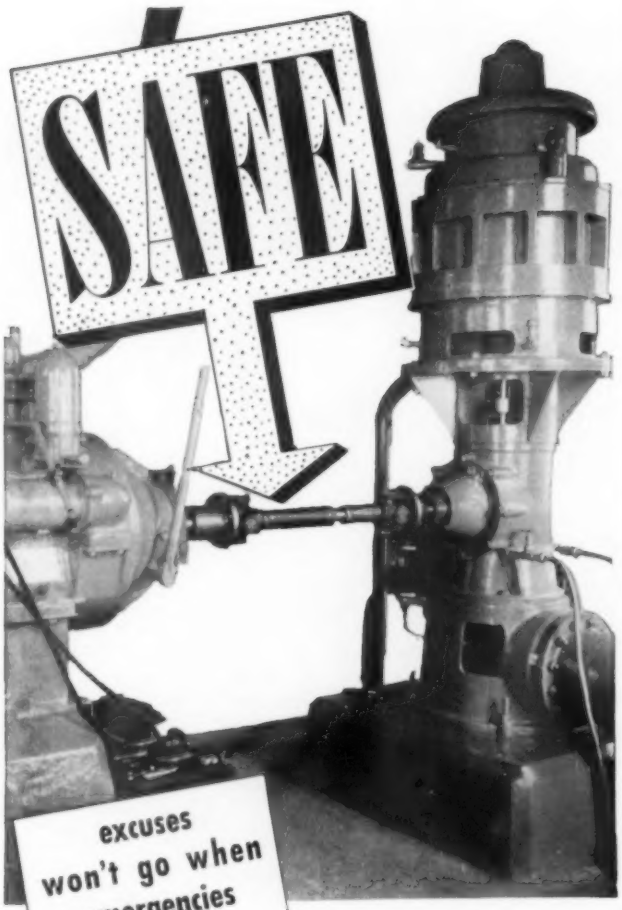
It will be noted that 27 per cent of the pedestrians crossing the street used the Walk signal. One beneficial result was observed—a much smaller percentage used the red indication. Two former surveys of pedestrian observance of signals at this intersection, one in 1934 and one in 1936, just prior to the installation of Walk signals, returned respectively 32.1 per cent and 32.3 per cent of the pedestrians crossing against the red signal.

Children's Fares

In answer to many requests on the matter, the Municipal Information Bureau of the United States Conference of Mayors has published a report on "Reduced Street Car and Bus Fares for School Children." The study covers 132 cities of over 50,000 population throughout the country. Detailed data are given for each of the 93 cities in which reduced rates of fare for school children are now in effect. 18 pp. 50c. (Apply to the United States Conference of Mayors, 730 Jackson Pl., Washington, D. C.)

THE INSTITUTE OF TRAFFIC ENGINEERS HELD A DINNER AT THE HOTEL ASTOR, NEW YORK, ON APRIL 13, DURING THE GREATER NEW YORK SAFETY COUNCIL CONVENTION

On the dais are, left to right: Sidney J. Williams, Director Public Safety, National Safety Council; Ralph W. Eaton, Traffic Engineer, City of Providence; D. Grant Mickle, who after dinner described the City of Detroit Traffic survey; Harold F. Hammond, Secretary I.T.E.; Arnold H. Vey, State Traffic Engineer, New Jersey; Dr. Miller McClintock, Director, Harvard Bureau for Street Traffic Research; E. P. Goodrich, Consulting Engineer, New York City; W. Graham Cole, Metropolitan Life Insurance Co.; Hawley S. Simpson, American Transit Association, and former Secretary I.T.E.



excuses won't go when emergencies come

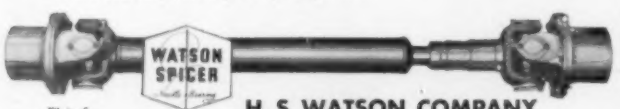
You can't prepare for an emergency after it's happened! That's why you'll find so many Watson-Spicer Needle Bearing Flexible Drive Shafts specified; especially for emergency stand-by equipment.

Underground water production involves problems of unusual foundation movement. Generally this does not impair the vertical motor drive BUT IT RADICALLY AFFECTS the auxiliary drive. A Watson Flexible Shaft will safely drive a pump that's settled downward as much as five inches or tilted over an inch!

The Watson Flexible Shaft has many other advantages such as: all metal construction, least power loss, doesn't whine, requires less space and smaller pumphouse than a belted drive.

for DRIVING deepwell turbines, horizontal pumps, vertical sewage pumps

Photo courtesy Sterling Pump Corporation



Write for Descriptive Catalog

H. S. WATSON COMPANY
1145 Harrison Street, San Francisco, Calif.
Eastern Office: Post Office Box 385, Toledo, Ohio

WATSON-SPICER *Needle-Bearing* FLEXIBLE DRIVE SHAFTS

The Standard
for more than
50 Years

Automatic Pressure Control Valves
•
Feed Water Filters
•
Hydraulic Engines
•
Portable Fire Hydrants
•
Hydraulic Booster Pumps

ROSS VALVE MFG. CO., INC.
ARCHIBALD STREET TROY N. Y.

SIX TYPES OF SEWER RODS

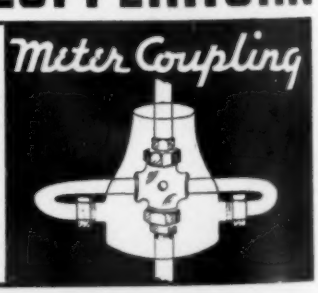
Samples on Request

TURBINE SEWER MACH. CO.
52nd & W. State St. Milwaukee, Wis.

The FORD COPPERHORN

The correct and economical way to set water meters in basements. Puts the meter in the correct position at the proper height. Easily installed and saves time and trouble in meter changing.

Write for catalog describing the COPPERHORN and other equipment for water meters.



THE FORD METER BOX CO.
WABASH, INDIANA, U. S. A.

Improving Municipal Administration

Current Items from the Public Administration Clearing House

Exemption of "Government Workers" from Income Tax

EXEMPTION of governmental employees from income taxes imposed by another level of government can no longer be taken for granted in all cases, it appears from recent opinions of state attorney-generals. While the U. S. Supreme Court recently declared the salary of a New York City water-works employee immune from the Federal income tax, thereby setting a precedent for exemption of thousands of similar employees throughout the country, attorney-generals of at least three states—Wisconsin, Montana and West Virginia—have ruled that employees of many of the new Federal agencies are not immune from state income taxes.

The matter of income tax exemption, which assumes importance because 34 states now have income tax laws and in several other states such laws are pending, is discussed in the first issue of the "Digest of Opinions" published by the Attorney-Generals Section of the Council of State Governments. (This "digest" is the first regular publication to collect and clear opinions of state attorney-generals on current subjects of common importance. It is prepared for the National Association of Attorney-Generals.)

Voters Demand Increased Municipal Services

WITH better business conditions, city dwellers are asking for new municipal services and for extension of the old, established activities. Typical of the trend as discussed in the 1937 edition of The Municipal Year Book, just published by the International City Managers' Association, is the report of Mayor Harold H. Burton of Cleveland, Ohio. During 1936 that city established a Division of Crime Prevention, a municipal collection of Cleveland art, a Landscape Architectural Division in the Department of Parks and Public Property, and a central division of motor-vehicle maintenance. Two new positions were established in the mayor's office: an assistant in charge of personnel and public relations, and an assistant in charge of relations with the Federal Government. Re-establishment of summer band concerts in the parks, substitution of incinerators for a garbage-reduction plant, re-establishment of the Division of Street Signs and House Numbers, and the building of a new lake-front highway on filled-in land as a WPA project were also accomplished.

Indicative of services added by other cities are these: 36 cities reported the construction of a sewage-disposal plant, an airport, or a municipal auditorium; 20 others took on such public works activities as compulsory automobile inspection, smoke regulation and maintenance of farmers' markets.

Twenty-seven cities reported new activities or services in the field of recreation. Berkeley, Calif., for example, undertook the operation of a yacht harbor, and Iowa City, Iowa, constructed a community center. Seven cities reported new public health services—establishment of a city-county health unit, creation of the position of water chemist, inauguration of milk and dairy inspection, setting up of a division of public health nursing, organization of a health department clinic, and establishment of a bureau of social hygiene.

A number of cities reported installation of two-way police radio equipment, establishment of a traffic or safety commission, and installation of parking meters. Eleven cities listed such miscellaneous establishments as a central purchasing department, an industrial commission, a bureau of fire prevention, and a municipal library.

The tendency to add new services and develop old ones, according to the Year Book, "is matched by a disinclination to abolish old services which apparently have proved their worth" (additional taxes notwithstanding). "Not more than a dozen reporting cities abandoned any service, and in two of these instances the function was transferred to the county or the state."

River Cities Zoning Banks Against Next Flood

THE now well-tested planners' tool of zoning may be utilized to help prevent recurrence of some of the recent flood losses suffered by Ohio Valley cities. According to Paul Oppermann, Assistant Director of the American Society of Planning Officials, at least one city has rezoned its riverside land, and two others are contemplating it.

New Albany, a town of 23,000, on the Indiana side of the Ohio River, will turn its lowland into park area. Citizens who formerly lived near the waterfront are encouraged to resettle elsewhere in the town.

On the other side of the river(Louisville, Ky., is exploring the possibilities of zoning against the improper use of its riverside land. An amendment to Louisville's zoning ordinance would create a new type of district within which no new residential structures could be erected and no existing residential building could be structurally altered. The amendment's purpose is to forestall new building in some of the lowlands along the Ohio. Appropriation of a special fund has also been proposed with which to acquire a part of this area for park developments.

In Cincinnati a proposed zoning amendment submitted to the City Council would prohibit the building of any type of dwelling in Industrial "B" and "C" zone districts, which include more than nine square miles of the city lying almost entirely in the area that was flooded.

Although the belief is growing that proper flood control is not a local matter alone, but one calling for the coordinated activities and the cooperation of Federal, state and local governments, communities affected can do some things toward "getting out of the river's way," Mr. Oppermann says. They can discourage the use of the lowest, most flood-vulnerable grounds. Instead of locating new homes, new industries, railroads and highways where they are exposed to flood waters, there will probably be in the future a much stronger public sentiment for going to high ground with these new developments wherever feasible and for letting the river have a little more elbow room. There was a time when proximity to the water and the facilities of the "river trade" was a necessity to industry and commerce. Availability and increasing use of other means of transportation have brought new elements into the picture.

Modernization and Mechanization of Assessment Procedure

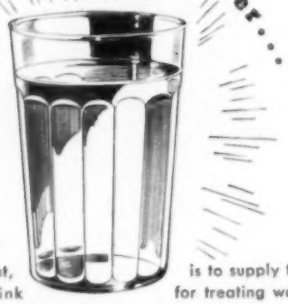
SAVING money in the long run and providing for more just tax assessments for citizens are the objectives of a number of American cities that are modernizing their assessing systems.

Fort Worth, Texas, according to the *Assessors' News Letter*, bulletin of the National Association of Assessing Officers, is one city in which a complete reappraisal of property is under way and modern assessing methods have been installed. This "modernization" includes new land maps for the entire city, a complete set of new land and building card records, and the preparation of a building manual. About 60,000 parcels of land will be reappraised in the survey, at a cost to the city of about 25 cents per parcel.

In Washington, D. C., a Commissioners Special Committee on Tax Delinquency, recommending improvements after a survey, has advised for the assessor's office a complete modernization and mechanization of the work, reduction of the tax review period from six months to three, discontinuance of the tax rolls by substitution of a modernized card record, and preparation of tax bills in a central billing office.

Among other cities which, during the

Just A Glass Of Water...



Without a second thought, millions of people drink the water that flows from their faucets . . . that is served at their tables every day in the year.

They drink it without question because they know it is pure . . . because they realize that every possible precaution has been taken to safeguard household water against contamination.

That places a lot of responsibility on the waterworks engineer. And in turn . . . a heavy responsibility on the organizations whose business it is to supply the chemicals for treating water supplies.

General Chemical Company Aluminum Sulphate is manufactured under the most rigid technical control of quality. It is a product on which engineers can rely for strict uniformity of chemical and physical composition. It remains free-flowing . . . dissolves quickly and can be supplied in a wide range of grades and particle sizes.

Write for data on grades and prices of General Chemical Company Aluminum Sulphate.

GENERAL CHEMICAL COMPANY
Executive Offices: 40 Rector Street, New York City

ALUMINUM SULPHATE

Wasted Water Means Lost Revenues

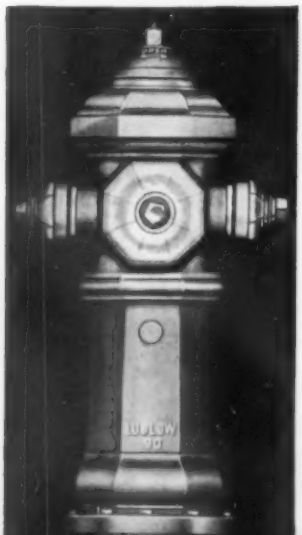
A Municipal Water Plant in the State of New York using ***Simplex Water Waste Survey Equipment*** has, by retaining a trained ***Simplex*** engineer to check its distribution system and large industrial meters, in the last three years discovered lost and wasted water equivalent to $37,650.00, a large percentage of which will be an annual saving.

A check on *your* distribution system might effect comparable reductions in operating costs.

WRITE FOR DATA

SIMPLEX VALVE & METER CO.
6789 Upland Street
Philadelphia Penna.

√Check LUDLOW Hydrants



Check these points about the Ludlow No. 90 hydrant—

- √ Full force—no obstruction in waterway
- √ Non-freezing—drains from bottom
- √ Surge and water hammer eliminated
- √ Replaceable without digging
- √ Parts easily removable—low maintenance

—and finally, the most modern, graceful design obtainable. Send for free folder.

The LUDLOW VALVE MFG. CO.
TROY, NEW YORK

CENTRIFUGAL PUMPS
Rotary Jet Condensers and Vacuum Pumps; Evaporators, single and Multiple effect

Manistee single-stage double-suction pumps, 75-20,000 g.p.m. capacity

Manistee multi-stage pumps, 50-3500 g.p.m. capacity with heads up to 1600 feet

Write for Bulletins

MANISTEE IRON WORKS CO.
MANISTEE MICHIGAN

THE WILLIAM S. HEWETT SYSTEM

of reinforced construction

gives you a structure that WILL NOT CRACK.

Write for Bulletin A, showing various designs of tanks, reservoirs and standpipes; and Bulletin B, explaining the theories on which the system is based.

At left—1,500,000-gallon standpipe built for the City of Minneapolis.

The William S. Hewett System
549 W. Washington St., Chicago, Ill.

past year, reported improvements in assessing methods are Chicago and San Francisco, both of which made machine installations; Yuma, Ariz., Bridgeport, Conn., Orlando and West Palm Beach, Fla.; Benton Harbor and Flint, Mich.; Greensboro, N. C., and Dallas, Texas.

"The initial expense of modernizing an assessment office may seem high, but experience shows that in practically all cases where the work is done, the cost is more than justified by immediate and ultimate benefits that follow," says Albert W. Noonan, Technical Director of the National Association of Assessing Officers. "An increase in taxable property, better distribution of the tax burden, and a more accurate portrayal of the city's resources are the usual benefits which accrue."

Mr. Noonan cites the case of Bakersfield, Calif., where Assessor Dean R. Hurley reports that for the past five years there have been only two protests made by taxpayers against the assessments placed against them. Both of these occurred in 1935. The Assessor attributes the unusual non-protest record to the modern system installed in 1932. Even though this resulted in a 26 per cent increase in assessed valuation, the equality of the values established was so satisfactory that no protest was made that year.

Balanced Rebuilding of Cities

Chamber of Commerce of the United States Recommends Comprehensive Program

IN a leaflet just issued by its Construction and Civic Development Department Committee, the Chamber of Commerce of the United States offers a suggested program for a proper control of city development and to aid local chambers of commerce and other civic groups in their efforts to check blight and excessive decentralization in their respective cities. Excerpts from this leaflet, "Balanced Rebuilding of Cities," follow:

While the importance of the city has long been generally recognized, a realistic understanding of the effects during the past two or three decades which the rapid growth of cities, combined with a lack of foresight on the part of their citizens, has had upon the economic structure of the city is more recent and is by no means so general. It is now evident from analyses which have been made of so-called blighted or deficit districts that some of these effects are not only socially and economically detrimental but even tend to threaten the stability of the city's economic structure, by which is meant the city's physical plant, privately and publicly owned, and its facilities and services.

While the welfare of the city as regards commerce and industry in practically all cities is studied continuously and zealously safeguarded, as it should be, the welfare of the city's residential areas in most cities, and particularly the larger ones, has been neglected. Yet these areas have been peculiarly subject to the detrimental effects of rapid growth. Some of the present trends which are impairing urban residential areas, which constitute so important a part of every city's economic structure, are:

1. Withdrawal of population to suburban area
2. Emergence of large blighted districts
3. Depreciation of property values
4. Impairment of the city's tax structure
5. Increased costs for police, fire, and welfare services in the worst of the run-down areas

Corrective action is needed to restore and then to maintain the balance in the growth of the city's residential areas. It will have to be based on careful studies by responsible agencies in each community. There is no formula which offers a ready solution. Local conditions will vary and the attack on them will have to proceed along several specific lines simultaneously. While this is so, it is possible and should prove helpful to set forth in general terms the action which, it appears, must be taken to obtain the desired objectives.

Broadly speaking, the basic action needed is (a) *adequate protection* for the suburban areas that are still new and in good condition, (b) *rehabilitation* of the blighted districts, and (c) *reconstruction* of the areas which are beyond repair.

Specifications for Comprehensive Program

To assure a balanced growth, a city must recognize and in proper ways enforce good standards of design, of construction, and of maintenance of all classes of structures, and an appropriate adjustment of uses of land for commercial, industrial, and residential and allied uses to each other and to the site of the city. The following specifications are suggested as the basis for bringing about and maintaining such a proper control of the development of the city. It is believed that the most satisfactory results will be obtained in the cities where the highest standards are used in connection with each specification *and where there is careful integration of all the specifications and a continuing attack upon the problem*:

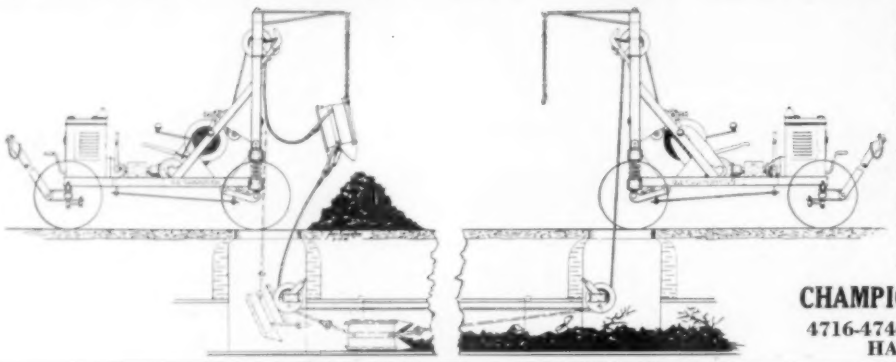
1. Estimate of 25-year population growth of the city and its environs. This must necessarily involve a study of the economic base of the community, that is, the composition and prospects of its commercial and industrial enterprises.
2. Estimate of land-use needs for commerce, industry, and residential and allied uses for the whole population 25 years hence.
3. Revision of zoning ordinance and plan in accord with the future land-use needs thus determined.
4. Gradual elimination of all inappropriate uses of land, with particular reference to improvement of residential areas.
5. Determination of the most desirable distribution and density of population from the points of view of adequate housing and easy access to work.
6. Estimate of total housing needs for all income groups of the population, including an appraisal of the adequacy of present housing.
7. Strict control of all new land subdivision.
8. Revision of building code so as to bring it in line with the best modern practice.
9. Revision of housing code so as to make it adequate, or the enactment of such a code if one does not now exist.
10. Revision of tax structure with a view to encouraging appropriate land use.
11. Enactment of a minimum housing standards ordinance.
12. Removal of all obsolete structures which are unsafe or unfit for human occupancy.
13. Repair and renovation of old buildings that are not yet obsolete.
14. Division of the residential areas of the city into well-defined neighborhood units.
15. Adoption of a neighborhood protective and improvement measure to permit the organization of each neighborhood unit for purposes of preservation of high standards in newly developed areas, and for purposes of rehabilitation in blighted areas.
16. The building or rebuilding of neighborhood units as completely planned communities, maintained and operated in a single ownership, either through limited dividend companies or through other soundly organized corporations.

The Municipal Bond Market

Recent sales of new issues from April issues of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$660,000	Massachusetts, Gloucester Pier	1.75	1-5 Ser.	1.70
200,000	Utica, N. Y., Emergency Relief	2.20	5.25 Avg.	2.13
400,000	Auburn, N. Y., Home Relief and Public Improvement	2.40	1-10 Ser.	2.36
700,000	Monroe Co., N. Y., Tax Revenues	2.5	1-5 Ser.	2.44
500,000	Bristol, Conn., Water Funding	3	2-21 Ser.	2.87
180,000	Lexington, Ky., School Revenue	3	11 Avg.	2.88
585,000	Canton, Ohio, Delinquent Tax	3	3.5-5.5 O.-A.	2.9
402,000	Mercer Co., N. J., Road, Bridge and County Improvement	3	8.16 Avg.	2.94
15,000,000	New York, Grade-Crossing Elimination	3	1.50 Ser.	2.9578
250,000	Marinette Co., Wis., Highway Improvement	3	3.66 Avg.	3
200,000	Portsmouth, Ohio, Water-Works Revenue	3.5	3-10 Ser.	3.44
110,000	Cornwall, N. Y., Sewer	3.5	15.5 Avg.	3.45
275,000	Aberdeen, Wash., Water Revenue	4	16 Avg.	4
145,000	Sayreville, N. J., Sewer	4.5	16.8 Avg.	4.44
110,000	Tuscaloosa, Ala., City Hall, Police Station and Jail	4.25	11.8	4.73

THIS O K CHAMPION POWER SEWER CLEANER SAVED $4500



In 1936 operating costs for one of America's best known cities.

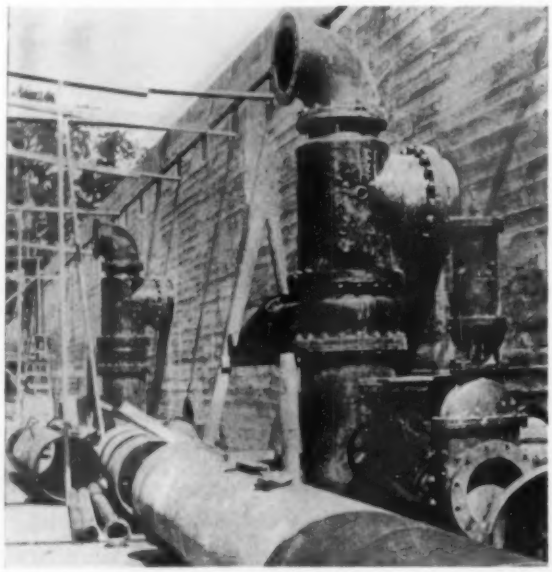
It will do the same for you.

Try one free of charge in your own city.

We also manufacture hand operated cleaners and a complete line of sewer rods and accessories.

CHAMPION CORPORATION
4716-4740 SHEFFIELD AVE.
HAMMOND, IND.

ACIPCO



Installing Acipco cast iron pipe and fittings in recently completed addition to the great Bachman Filter Plant, Dallas, Tex. For highest quality material and active cooperation on any project involving piping, address Acipco office nearest you.

AMERICAN CAST IRON PIPE CO.
BIRMINGHAM, ALA.

New York City Chicago Kansas City Minneapolis
Pittsburgh Cleveland Dallas Los Angeles San Francisco

Johnson City Fire Hydrant

Not just another hydrant—but one designed to overcome difficulties heretofore troublesome to water works men and fire chiefs . . . with an *extra factor of safety* for severe service.

Not easily damaged; but *if* ever injured, easily and quickly repaired without shutting off the line and without digging.
Write for circular giving complete details.

Johnson City Foundry & Machine Co.
Johnson City, Tenn.

MH VALVES

Double disc—parallel seat
Recommended for working pressure up to and including 175 pounds

Extra heavy—extra strong—extra safe
Highest Grade Materials
Finest Workmanship

BOOKLET

M. & H. VALVE & FITTINGS CO.
ANNISTON, ALA.

HYDRO-TITE

A DEPENDABLE SELF - CAULKING JOINT COMPOUND

DEPENDABLE ALWAYS

For strong, tight, flexible cast iron water pipe joints *** Used on thousands of miles of pipe for more than 21 years *** Not a failure anywhere.

HYDRAULIC DEVELOPMENT CORPORATION

Main Sales Office: 50 Church Street, New York, N. Y.
General Offices and Works: W. Medford Sta., Boston, Mass.

HYDRO-TITE

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning: The Laws, Administration and Court Decisions During the First Twenty Years"

Non-Conforming Use—Extension

CONNECTICUT.—*Rice v. Zoning Board of Appeals of Town of Milford*, 190 Atl. 253 (Supreme Court of Errors, February 4, 1937).—A zoning regulation prohibiting the erection or use of a building for housing more than two families in a given district, and providing that a non-conforming use should not be extended to diminish the extent of a conforming use, does not prohibit the change of a dormitory (which was a non-conforming use) to an apartment house by merely altering the interior of the building, since the existing use of the building was an entirely non-conforming one.

Board of Appeals—Variance for Unnecessary Hardships

FLORIDA.—*Tau Alpha Holding Corporation v. Board of Adjustment of City of Gainesville*, 171 So. 819 (Supreme Court, January 15, 1937).—The power, given the Board of Adjustment of the city by statute, to relax or vary the zoning ordinance in individual cases, in accordance with its main purpose and spirit, is not an illegal delegation of legislative power, but is constitutional.

EDITOR'S NOTE.—This case follows *Taylor v. City of Jacksonville*, 101 Fla. 1241, 133 So. 114 (1931) and is given here because the decisions on this point in Florida are so few.

Private Restrictions—Billboards

ILLINOIS.—*Kruetzgen v. General Outdoor Advertising Co.*, 6 N. E. (2d) 469 (Appellate Court, First Division, First District, February 1, 1937).—Where deeds to lots contain restrictions against the construction of buildings costing less than $5,000, or buildings for the purpose of conducting any business, the erection of advertising signs on the property costing less than $5,000 is a violation of the restrictions; signboards being buildings within the meaning of restrictions imposed for the purpose of preserving the property for residential purposes.

Zoning—Side Yards—Variance

NEW JERSEY.—*La Mer v. Gill*,* 187 Atl. 730 (Supreme Court, October, 1936).—Plaintiff had a very narrow house which he desired to widen. He could not widen toward the west on account of a deed restriction, so he desired to widen toward the east to an extent which would violate the side-yard provisions of the zoning ordinance. The minimum side-yard requirement was 8 feet. Plaintiff wished to go to within 3 feet of the boundary line of his lot, and the board of adjustment authorized a permit to within 5 feet. Neighboring property owners consented to the plaintiff's desires. By certiorari the case was brought into the Court for review. The Court held the side-yard restrictions to be invalid, as it was not shown that a 3-foot side-yard would destroy the health of the neighborhood. The Court arrived at this conclusion by finding that other neighboring lots had plenty of air and light for the plaintiff's neighbor; also that plaintiff had no other practical way of enlarging his house. . . .

The above description shows that the case is a discouraging illustration of a misunderstanding of zoning. There is a tendency upon the part of some courts to substitute their judgment for that of the legislative body while at the same time giving lip service to the legality of zoning. This is a deplorable tendency which must be guarded against.

* From the *News Letter* of the American Society of Planning Officials.

Nuisance — Coal Yards — Location of One Use Within Given Distance of Another

OHIO.—WOLARZ *v. Village of Cuyahoga Heights*, 4 N. E. 2d, 400 (Court of Appeals, Cuyahoga County, April 20, 1936).—These are two suits by one Wolarz, the first against the village of Cuyahoga Heights, the second against the village of Newburgh Heights.

The village of Cuyahoga Heights passed an ordinance forbidding the use of buildings on premises within the "general industrial" zoning district in a distance of 300 feet of any building devoted in whole or in part to the manufacture or production of food products.

The village of Newburgh Heights passed an amendment to its zoning ordinance in each of its various sections and/or sub-sections forbidding the use of premises within the village for the storage and sale of coal or builders' supplies if the premises so to be used are within 500 yards of a dwelling house and/or any plant or premises or factory in which is manufactured and/or produced and/or packed any food products for sale to the public.

In his opinion the Judge says: "It appears from the record that the district referred to in each of these ordinances was zoned for commercial purposes"; by which the Court probably meant to say that in both villages Wolarz was seeking to locate a coal yard in such a district.

The Court holds that the provisions of the ordinances forbidding him to locate his coal yard within the prohibited distances in these districts are an arbitrary, unreasonable and discriminating exercise of the police power, and the Court so decides.

The operation of a coal yard in a commercial district is not a nuisance *per se*; but methods of operation may be such as to constitute it a nuisance as a matter of fact. It is within the power of the Legislature to declare certain property, or a certain place of business, a nuisance; that is, to enlarge the common law category of nuisances, for the promotion of the public health, morals and safety. All the particular subjects to which this power may be applied have not been, and cannot be, certainly defined in advance; but it is confirmed by the constitutional provision that citizens shall not be thereby unreasonably, arbitrarily or without due process of law deprived of life, liberty or property. The Legislature cannot, therefore, by its mere statement to that effect make that a nuisance which is not in fact a nuisance. That which has none of the elements or characteristics of a nuisance, that has no capacity or tendency to injure the public health, morals, safety or interest, cannot be made a nuisance by the Legislature under the guise of a police regulation declaring it such.

Therefore, neither the Village Councils nor the State Legislature can prohibit the coal yard absolutely when it is not a nuisance *per se* but may become one as a matter of fact; although of course the Village Councils may impose reasonable regulations as to the manner in which coal yards shall be operated and conducted so as to prevent them from becoming a nuisance in fact.

It will be argued that the ordinances in question do not prohibit the location of coal yards in these villages, but merely contain a regulation as to the distances of their locations from food factories. But the owners of property located within the prohibited distance are thereby illegally deprived of the lawful use of their property.

Zoning Liquor Saloons

The report for 1936 of the Massachusetts Department of Public Welfare, Division of Town Planning, of interest in several ways, is especially so in its suggestion with regard to the zoning of places where alcoholic beverages are sold. It suggests that, like garages and filling stations, they be prohibited by the zoning ordinance, within a given distance of such uses as residences, schools, churches, libraries, parks and playgrounds.

HYDRAULIC POWER
and plenty of it

HEIL Quality PRODUCTS

HOISTS - BODIES - TANKS
ROAD SCRAPERS - SNOW PLOWS
BOTTLE WASHERS - DEHYDRATORS
OIL BURNERS - WATER SYSTEMS

Heil dump units are powered by dependable hydraulic hoists designed and built to stand up under the terriffic strain of constant dumping service—The complete Heil line includes hydraulic dump units of all kinds, for all kinds of jobs and there is a size and type to fit every make of truck —Be sure to get Heil recommendations before you buy—See your nearest Heil dealer or address:

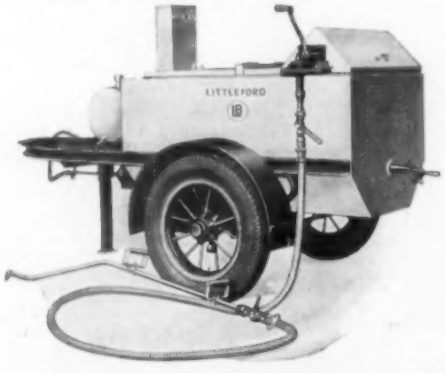
THE HEIL CO.

General Offices: 3000 West Montana St., Milwaukee

FACTORIES: MILWAUKEE, WISCONSIN; HILLSIDE, NEW JERSEY

BRANCHES AND DISTRIBUTORS EVERYWHERE

A FASTER HEATER



The No. 84-HD Littleford Kettle

Double use of the heat in your tar and asphalt melting kettles means quicker draw-off, more output per day and savings in fuel. "Double Heat Circulation," a Littleford feature, enables you to benefit by this saving. Write for prices and data, today.

LB BLACK TOP ROAD MAINTENANCE EQUIPMENT SINCE - 1909

LITTLEFORD

LITTLEFORD BROS.
500 EAST PEARL STREET
CINCINNATI, OHIO

The Murdock Outdoor Drinking Fountain

Ultra-modern, anti-freezing. Positively the most practical fountain for public service obtainable. Highly endorsed by over 800 municipalities alone.

Splendid for
PARKS, PLAYGROUNDS, ATHLETIC FIELDS, RECREATION CENTERS, OPEN SQUARES, PUBLIC STREETS

Modern type bubbler extends well above rim of basin so latter may overflow in case of drain stoppage thus preventing contaminated water reaching drinking supply.

If you desire to modernize old Murdock fountains, write for complete information to

The Murdock Mfg. & Supply Co.
Cincinnati Ohio

Makers of Outdoor Water Devices Since 1853

OUTWORKS 3 TO 5 HAND MOWERS

• For park and boulevard lawns—where trees, walks, flower beds and shrubs make ordinary power-mowing slow and difficult—the "one-hand" EVINRUDE Lawn-Boy outworks 3 to 5 hand mowers and does a better job!

Cuts 18" swaths, works 6" closer to trees, etc., than most hand mowers, trims steep terraces easily and its light weight won't pack or tear soil. Rubber tires, 4 cutting heights, automatic control of starting or stopping through one-hand movement of handle grip. Only $110 f.o.b. factory; easy terms. Prices subject to change without notice.

FREE LITERATURE—Write Today
EVINRUDE LAWN-BOY
1703 W. Hope Ave.
Milwaukee, Wis.

EVINRUDE LAWN-BOY

The City's Legal Rights and Duties

Conducted by A. L. H. STREET, Attorney at Law

Accidents

City unauthorizedly participating in carnival in city park held not liable for injury to visitor due to negligent operation of amusement device by a concessionaire (Texas Court of Civil Appeals: *City of Harlingen v. Scroggins*, 101 S. W. 2d, 632).

City held liable, under "attractive nuisance" doctrine, for injury to boy who came in contact with insufficiently insulated light wire at top of pole, after climbing the pole on cross-arm steps, with which the pole was equipped, to witness boxing matches in a nearby athletic stadium (Illinois Appellate Court: *O'Donnell v. City of Chicago*, 6 N. E. 2d, 449).

City employee held not entitled to an award for injury while cleaning a sewer, under compensation act covering employees engaged in "repairing," etc., sewers (Oklahoma Supreme Court: *Payton v. City of Anadarko*, 64 Pac. 2d, 878).

City held liable for injury to motorist when car struck bridge-supporting girder in center of street, where there was no adequate warning of the existence of the girder, as demanded by frequently occurring fog conditions (Maryland Court of Appeal: *Mayor and City Council of Baltimore v. Thompson*, 189 Atl. 822).

That fire truck negligently struck plaintiff's automobile held not to make city liable, although accident occurred outside city limits (Connecticut Supreme Court of Errors: *Brock-Hall Dairy Co. v. City of New Haven*, 189 Atl. 182).

Fourteen-inch elevation of sidewalk at alley crossing held not such defect as to render city liable to pedestrian who fell in stepping from walk (Oklahoma Supreme Court: *Lewis v. City of Tulsa*, 64 Pac. 2d, 675).

Board Proceedings

Binding action of a board of commissioners held to be only such as was taken at an official meeting and shown by board records (Illinois Appellate Court: *People v. City of Kankakee*, 6 N. E. 2d, 260).

Bond Issues

Various factors affecting validity of funding bond issues under constitutional debt limitation, determined (Kentucky Court of Appeals: *Coffman v. Central City*, 101 S. W. 2d, 204).

Constitutional limitations on incurring municipal "indebtedness" without electoral assent held inapplicable to issuance of water-works bonds payable from water-works revenues (Alabama Supreme Court: *Randall v. City of Tuskegee*, 172 So. 277).

In a statutory bond validation proceeding, city held to have burden of affirmatively establishing validity of a proposed issue (Kentucky Court of Appeals: *Lock v. City of Middlesboro*, 101 S. W. 2d, 203).

Business Regulations

Ordinance forbidding sale of foodstuffs in open windows, etc., on certain section of Broadway, New York City, held invalid as designed to favor real estate values and not intended as health measure (New York Court of Appeals: *People v. Cohen*, 5 N. E. 2d, 835).

Civil Service

Fire marshal held not protected against discharge by civil service provisions relating to "policemen" and "firemen" (Pennsylvania Supreme Court: *McNitt v. City of Philadelphia*, 189 Atl. 300).

Police commissioners' rule for discharging policemen failing to obtain official permission to engage counsel and file civil action held void as being unconstitutional (Missouri Supreme Court: *State v. Remmers*, 101 S. W. 2d, 70).

Cemeteries

City held empowered to act as trustee of local cemetery association's perpetual care funds in absence of express statutory prohibition, and not entitled to deduct from principal of funds amount of interest paid on funds without legal liability therefor (Wisconsin Supreme Court: *Wauwatosa Cemetery Assn. v. City of Wauwatosa*, 271 N. W. 402).

Contracts

City held powerless to pay in advance for services to be performed by an advisory expert (Wisconsin Supreme Court: *State v. Maxwell*, 271 N. W. 393).

By accepting and using hose bought by Mayor and Clerk, city held to have ratified contract defective because not authorized by Council (Texas Court of Civil Appeals: *B. F. Goodrich Rubber Co. v. Town of Collinsville*, 101 S. W. 2d, 583).

Depositaries

City depositary held liable for unauthorizedly issuing negotiable certificates of deposit to City Treasurer who converted proceeds (New York Supreme Court, Appellate Division: *Fidelity & Casualty Co. v. Farmers National Bank*, 293 N. Y. Supp. 8).

Embezzled Funds

Municipality held not liable for bail deposit embezzled by magistrate, whether exaction of deposit was legal or not (New Jersey Supreme Court: *Lennen v. Town of Belleville*, 189 Atl. 652).

Home Rule Charters

Home rule charter, requiring assent of taxpaying electors to light-plant acquisition, held amendable by general electorate so as to authorize acquisition without such assent (Colorado Supreme Court: *Cook v. City of Delta*, 64 Pac. 2d, 1257).

Licenses

Statute empowering cities and towns to license businesses outside corporate limits but within police jurisdiction limits upheld and held to authorize ordinance imposing license tax on filling stations outside city limits (Alabama Court of Appeals: *City of Birmingham v. Wilson*, 172 So. 292).

Municipal Utilities

Statutory power of a municipality to maintain light plant held not to authorize retail sale of electrical appliances nor business of installing or repairing such appliances (Massachusetts Supreme Judicial Court: *Macrae v. Selectmen of Town of Concord*, 6 N. E. 2d, 366).

Ordinances

Ordinance penalizing drunken driving held not invalid in providing lower maximum punishment than fixed by statute for same offense (Virginia Supreme Court of Appeals: *Shaw v. City of Norfolk*, 189 S. E. 335). But an ordinance against lotteries was held void because it provided a different—and less severe—penalty for violation than the state law for the same offense (Texas Supreme Court: *City of Wink v. Griffith Amusement Co.*, 100 S. W. 2d, 695).

Police Measures

Ordinance forbidding barmaids and music in barrooms upheld (Louisiana Supreme Court: *City of De Ridder v. Mangano*, 171 So. 826).

Ordinance prohibiting distribution of circulars, etc., without official permit held not invalid as applied to religious pamphlets (Georgia Court of Appeals: *Coleman v. City of Griffin*, 189 S. E. 427).

Poor Relief

Statute to reimburse municipalities of certain classes for relief expenditures held unconstitutional for lack of uniform operation (Minnesota Supreme Court: *Village of Robbinsdale v. County of Hennepin*, 271 N. W. 491).

Public Utilities

Power company operating under state indeterminate permit held entitled to enjoin city from competing with it under a permit rights under which had been forfeited by non-user (Indiana Supreme Court: *City of Huntington v. Northern Indiana Power Co.*, 5 N. E. 2d, 889).

Numerous factors properly considered in determining reasonableness of natural gas rates recognized in suit by gas company to compel city to increase rates (United States District Court, Western District of Arkansas: *Arkansas-Louisiana Gas Co. v. City of Texarkana, Ark.*, 17 Fed. Supp. 447).

Where street railroad was abandoned, city's claim for expense of removing tracks held not prior in right, as to proceeds of the tracks, over mortgage on company's property (New Hampshire Supreme Court: *Standard Oil Co. v. Nashua Street Railway*, 189 Atl. 166).

Street railroad held liable under franchise for cost of paving portion of street, in suit by contractors (Louisiana Supreme Court: *H. W. Bond & Bro. v. City of New Orleans*, 171 So. 572).

Sewers

Judgment for damages against city for pollution of stream through discharge of sewage, to annoyance of nearby residents, upheld (Oklahoma Supreme Court: *City of Holdenville v. Kiser*, 64 Pac. 2d, 1223).

Special Assessments

Village's general fund held not liable for diversion of funds from one special assessment fund to another, and property once assessed held not assessable again on account of such diversion (Illinois Appellate Court: *People v. Village of Bradley*, 6 N. E. 2d, 240).

Lien against abutting property on account of sewer construction held discharged by judicial sale of property in bankruptcy proceedings against owner, in which no claim was made although assets sufficed to pay the claim (Pennsylvania Court of Common Pleas, Northampton County: *City of Bethlehem v. Holley*, 28 Pa. Munic. Law Rep. 143).

Streets

City held liable to property owners for expense of repaving due to erroneous specifications provided by City Engineer for original paving (Texas Court of Civil Appeals: *Chapman v. City of Houston*, 101 S. W. 2d, 348).

Taxation

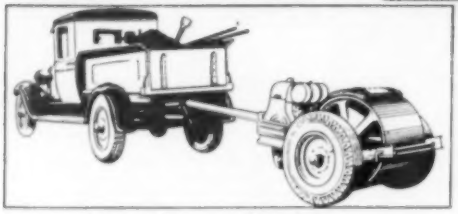
City's claim for sales taxes collected by insolvent debtor but not paid over to city held to have priority over claims of general creditors (New York Court of Appeals: *In re Atlas Television Co.*, 6 N. E. 2d, 94, reversing 291 N. Y. Supp. 138).

Water Supply

Where riparian owner sued to enjoin village from taking water from stream, Court held to have jurisdiction to fix damages and grant injunction only if village failed to pay (New York Court of Appeals: *Caudwell v. Village of Hamburg*, 6 N. E. 2d, 411).

City whose water supply was destroyed by pollution of stream by oil companies held entitled to recover the cost of providing a substitute system (United States Circuit Court of Appeals, Tenth Circuit: *Arkansas Fuel Oil Co. v. City of Blackwell*, 87 Fed. 2d, 50).

ANNOUNCING A MOTORIZED WHEELED ROLLER

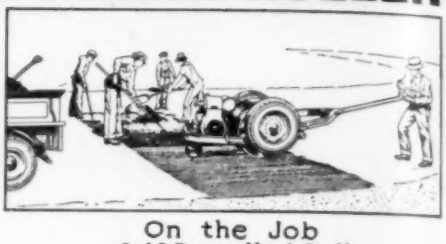


To and from the Job
a High-speed Trailer

MODEL 135
COMPRESSION 135 LBS. PER INCH OF CONTACT

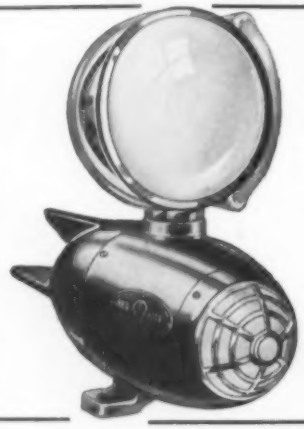
The most economical and efficient Roller for all types of patch work and miscellaneous small jobs.

Write for DETAILS!



On the Job
a Self Propelled Roller.

The WHEELED ROLLER Corp. ★ SAN ANTONIO, TEXAS



AKR-O-LITE OSCILLATING AND FLASHING APPARATUS LIGHT

For emergency use on fire department trucks, chief cars, ambulances and police cars

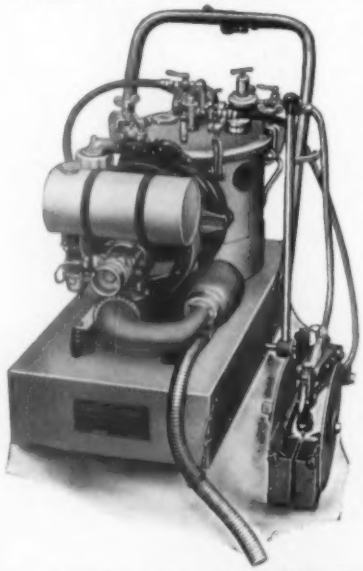
Protect your men and apparatus with this piercing red warning light, which *commands* instant attention.

The oscillator sweeps the pavement 110 times a minute. The flasher winks 150 times a minute. Powerful, penetrating rays are thrown fully 600 feet in front of the apparatus, and the result is visible a full mile ahead.

Write for illustrated circular

AKRON BRASS MFG. COMPANY, INC.
Wooster, Ohio

For Better Traffic Lines



Use the Spray Gun Method
The Littleford TRAF-O-SPRAY
for
Uniform, Penetrating, Sharp Lines

LITTLEFORD BROS.
500 E. Pearl St., Cincinnati, Ohio

They *invite use*—
These SOLAR Self-Closing RECEPTACLES

A touch on the lid where it says "*Push*" opens the lid. When the scrap paper or rubbish is deposited, the lid swings back of itself.

SOLARS are a *tremendous help* in keeping streets and parks free of litter. They lower street cleaning expenses, too.

They are *easy to use; easy to empty; long-lasting.* (The easily removed inner bags save wear and tear.)

Hundreds of cities now use them. Write for complete description and prices.

Many public buildings and schools, too, find SOLAR RECEPTACLES extremely helpful in reducing litter both inside and outside the buildings.

SOLAR-STURGES MFG. CO.
Melrose Park, Ill.

Municipal and Civic Publications

Prices quoted do not include postage, unless so stated

Municipal Year Book

The Municipal Year Book, 1937.—*Edited by Clarence E. Ridley and Orin F. Nolting. International City Managers' Association, 850 E. 58th St., Chicago, Ill.* 1937. 599 *pp.* $5.00.

The Municipal Year Book has been growing annually in size and valuable content. It is the most comprehensive single-volume record obtainable of the current events and developments in the field of municipal government. Section I is a collection of analyses by leading authorities of the present status of their particular specialized fields, headed by a general picture by C. A. Dykstra. Part II begins with a special section prepared by the United States Bureau of the Census on trends in urban population. Also in this section is an article on national inter-city contests in the fields of health, traffic safety, fire waste and municipal reporting; an article on 1936 Federal-city relations; an account of the activities of state municipal leagues; and a directory of cities over 10,000 population containing certain governmental data. Part III is devoted to personnel, including an analysis of the purchasing power of municipal employees; information on colleges and universities providing programs of education in public administration; studies of city-wide organizations of municipal employees, credit unions for local government employees and professionalization of the municipal service; and directories and tables containing various data on municipal personnel. Part IV, the municipal finance section, presents financial statistics and pays particular attention to the current problem of financing relief and recovery. A final section, Part V, is an extraordinarily fine directory of sources of information, organizations and printed matter, in which a selection of model municipal ordinances is particularly interesting.

City Law

Opinions of the Corporation Counsel and Assistants, April 15, 1929, to December 31, 1935.—Edited and compiled by Barnet Hodes, Corporation Counsel. Published by the City of Chicago Department of Law, 1936. *xxxi* + 1130 *pp. Selective distribution on request.*

The new Department of Law of the city of Chicago has stepped beyond former customary procedure by the publication of its "Opinions." The purpose of this volume is to provide a textbook on municipal corporations which will be useful to non-legal Chicagoans interested in government, as well as to lawyers.

State Police

Crime and the State Police.—By August Vollmer and Alfred E. Parker. University of California Press, Berkeley, Calif., 1935. *viii* + 226 *pp.* $2.50.

The present police set-up is woefully inefficient under modern conditions. Policemen appear from so many different sources, many of them local, that there is duplication of effort and lack of cooperation. In these days of rapid transportation and communication, the field of the criminal extends far beyond his local community, and without the coordination of all police activities within state boundaries his chances of escape are fairly certain. The present volume is a record of state police in relation to crime and gives suggestions for a state police administration that would go a long way toward effectively solving the modern crime problem.

Water Supply

"Protection of Fresh-Water Horizons in Oil Producing Areas, with Special Reference to Kansas," by C. J. Wilhelm of the United States Bureau of Mines, deals with the serious problems of handling increasingly large volumes of brine in the oil-producing areas in the interest of protecting the fresh-water supply. The causes, the implications and the methods of disposal of brine are analyzed. 15 pp. (Apply to the Kansas State Board of Health, Topeka, Kans.)

Municipal Index and Atlas

Municipal Index and Atlas, 1937.—*American City Magazine Corporation, 470 Fourth Ave., New York.* 631 *pp.*

There is little duplication in the scope or contents of The Municipal Index, now in its thirteenth year of publication and the Municipal Year Book, the fourth annual edition of which is reviewed in the adjoining column. While the Municipal Year Book deals mainly with the more purely administrative features of government, the Municipal Index puts most of its emphasis on public works improvements. The titles of the main section clearly point out their direction: "Streets and Highways: Construction and Maintenance," "Water Supply and Purification," "Sewage and Garbage Collection and Disposal," "Lighting and Power," "Public Safety: Traffic Control—Fire and Police Protection," "Parks, Playgrounds, Swimming Pools, Airports" and "Business Machines." Each section is essentially a progress report of its field, well fortified by statistics. Some of the particularly interesting tabulations include street-paving statistics of a large number of American cities, municipal electric earnings of 500 municipalities, and traffic signalization equipment in 221 municipalities. Directories of municipal officials and a 96-page Atlas are also included.

An important feature of The Municipal Index, as heretofore, are the pages descriptive of the products and services offered by some 250 manufacturers and consultants. These abridged catalogs are carefully classified and indexed for ready reference. This comprehensive volume should prove a valuable reference work for city, town and county officials, highway engineers and other engineers and laymen interested in planning, constructing and administering public improvements.

Reports of State and Regional Planning Boards

The recent output of reports and bulletins by the various State and Regional Planning Boards has been so great as to preclude the listing of such documents in the monthly issues of THE AMERICAN CITY. Readers wishing to keep in touch with the progress of state planning in their respective commonwealths would do well to request the mailing of such material regularly from their State Planning Board headquarters. If similar reports and bulletins are desired from other states, a letter addressed to the National Resources Committee, Washington, D. C., will bring a list of the local addresses from which these documents may be obtained.

Gasoline Tax

On July 1, 1936, the motorist's gasoline dollar bought 72 cents worth of gasoline and 28 cents worth of tax. The gasoline tax crept up to its highest point in 1933 and has been more or less stable since then because of strenuous opposition to any further increases. The opposition has taken the form of insistence that this source of revenue be employed only on highway construction and maintenance, and action of the petroleum industry against confiscatory rates on filling stations. Collection has reached a higher point of effectiveness during the past year owing to better administration and a relentless attack on large-scale evasion through bootlegging, adulteration and the abuse of exemption. These facts are some of the latest observations of Finla G. Crawford in his revised and complete story of the gasoline tax entitled "The Gasoline Tax in the United States, 1936." The nine chapters cover "Growth of the Gasoline Tax," "Administration," "Exemptions and Refunds," "Distribution of the Gasoline Tax," "Diversion," "Evasion," "Cities and the Gasoline Tax," "Constitutionality of the Gasoline Tax," and a "Conclusion." 50 pp. 50c. (Apply to Public Administration Service, 850 E. 58th St., Chicago, Ill.)

Highway Finance

The problem of the financing of highways started with the first vehicle. Years ago it was met through private turnpike companies which built turnpikes and charged toll to travelers. The system was not entirely satisfactory, however, and government aid was sought, and finally the whole business was turned over to the government. "Borrowing for Highways," a 103-page study by Edna Trull, covers the problem of highway finance in 10 chapters entitled: The States Enter Highway Finance; Highway Finance and the Automobile; Current State Highway Revenues and Costs; Extent of State Highway Borrowing; Types of Highway Debt; Debt Structure; Refunding of Highway Obligations; Special Highway Revenues; Relation Between State Highway Revenues and Debt Service; and State Servicing of Local Highway Debt. $2.00. (Apply to the Municipal Service Department, Dun & Bradstreet, Inc., 290 Broadway, New York.)

Drunkenness Defined

Although drunkenness is often an element of a crime, conviction is difficult on this basis because of the absence of scientific and legal clarification of the terms. The city of Los Angeles, however, has now a uniform and proficient method of investigation and procedure of examination prepared by its Chief of Police, James E. Davis. Results attained so far have justified the use of these methods, and published in this tiny 33-page manual entitled "'Drunkenness' Defined by Science and Law," they should serve as a practical guide and help to all police officers of California. (Apply to the Los Angeles Police Dept., Los Angeles, Calif.)

Grinding Garbage

"Grinding as a Process in Garbage Disposal" is a 14-page reprint from the Public Works Engineers' Yearbook 1937, by Mark B. Owen. The question of admitting garbage into the sewage system is of considerable current interest, and this pamphlet analyzes the three methods of grinding it for such disposal—by installation of the home grinder, by construction of centrally located grinding stations, or by grinding at the sewage plant. 25c. (Apply to the American Public Works Association, 850 E. 58th St., Chicago, Ill.)

Sewage-Plant Management

"The Management of a Sewage Treatment Plant" is a 5-page paper by Frank Woodbury Jones outlining the general principles of managing small installations. 25c. (Apply to the American Public Works Association, 850 E. 58th St., Chicago, Ill.)

Ventilation

The city of Chicago has just published "Sections of the Revised Chicago Code of 1931 Relating to Ventilation, with Amendments up to and Including March 1, 1937." Railway cars, theaters, garages, hotels and every conceivable variety of building or structure is regulated as to ventilation, and the commissioner of buildings and his assistants have the power of entry to assure compliance with the law. 55 pp. 30c, including postage. (Apply to the Municipal Reference Library, 1005 City Hall, Chicago, Ill.)

Pump Standards

As part of its service to all who have connection with the pump industry as buyers, users, manufacturers or engineers, the Hydraulic Institute recommends and publishes standard definitions, terms and practices, the adoption of which should be to the mutual advantage of all concerned. The sections of the combined seventh edition of "Standards of Hydraulic Institute" can be purchased separately and are entitled "General," "Centrifugal Pump," "Rotary Pump," "Reciprocating Pump," "Test Code," and "Data." $1.00 for the combined publication. (Apply to the Hydraulic Institute, 90 West St., New York.)

Photo, American Airlines, Inc.

Providence, Rhode Island

Another

DUAL-AUTOMATIC PARKING METER CITY . . . .

Providence—one of America's outstanding industrial and cultural centers; the capitol and the largest city of the state; founded by Roger Williams in 1631, is another progressive city now enjoying better parking facilities, greater safety and increased revenue provided by Dual *Automatic* Parking Meters. They will help solve your parking problems, too. Write for information.

DUAL PARKING METER CO.

Commerce Exchange Bldg. ***Carl C. Magee, President*** Oklahoma City, Okla.

WHY . . . . DELAYED ALARMS?

Fire destroys life, property, established business, profits, and taxable valuations. The greatest contributing factor is delayed alarms.

The remedy is a fire alarm system with adequate box distribution. The cost is negligible in comparison with the annual fire waste due to the absence of such protection.

Responsibility for public safety is inherently a part of the obligation assumed by public officials in accepting the call to duty—yet leading authorities admit that fire alarm is the most deficient of municipal fire defenses.

We will freely cooperate in planning adequate fire alarm protection for your community.

THE GAMEWELL COMPANY
NEWTON UPPER FALLS
MASSACHUSETTS

Taxation

"Facing the Tax Problem": A Survey of Taxation in the United States and a Program for the Future.—By Carl Shoup, Research Director, and Roy Blough and Mabel Newcomer, Associate Directors, assisted by a research staff of seventeen specialists. Prepared under the auspices of the following Committee on Taxation: Thomas I. Parkinson, Chairman, Francis Biddle, Henry S. Dennison, Robert M. Haig, Peter Molyneaux, and Eustace Seligman. Twentieth Century Fund, Inc., New York. 1937. *xxiii* + 606 *pp.* $3.00 *from* THE AMERICAN CITY.

The Twentieth Century Fund has rendered a real public service by making possible the carrying-out and presentation of this study. It is what it purports to be—a clear facing of the tax problem. A distinguished committee and a competent research staff set about examining the present tax situation and making recommendations for its improvement.

With respect to local revenues, the authors express their disapproval of sales taxes, tax limits and homestead tax exemption, and advocate the abolition of personal property taxation. They endorse the use of the special assessment in financing local improvements, but regret the failure to improve this method in theory or practice during the past decade or two. It is held that the gasoline and motor-vehicle taxes provide a suitable method of financing most of the cost of highway and part of the cost of city streets. The remainder could be met by special assessments and out of the general fund.

MABEL L. WALKER.

"Playparks"

The Coronation Planting Committee has dedicated a publication entitled "Playparks" to their Royal Highnesses Princess Elizabeth and Princess Margaret Rose. Thomas Adams, the author, has outlined clearly the needs of young and old for additional play space and suggests and advises a comprehensive program for its provision. In many congested urban areas the child is confined in his play to the dangerous street or the overcrowded tenement. It is imperative in the interests of the health of the people of Great Britain that the active children have every opportunity for healthful exercise, and the old people and the youngest children with their mothers and guardians, restful recreation. Facilities should be provided and education and training in their use. This pamphlet contains many practical observations and suggestions on sites, sizes and frequency of playparks; their planning details; cost distribution and effects of playgrounds on property values; steps in organizing a park and playground program; and, finally, the powers of local authorities to acquire open spaces and the actual proposals of the government for physical training and recreation. 55 pp. 1 shilling. (Apply to the Coronation Planting Committee, 68 Victoria St., Westminster, S.W. 1, London, England.)

Public Works

The 1936 Public Works Congress, a joint meeting of the American Society of Municipal Engineers and the International Association of Public Works Officials, has published a record of its proceedings. A decision of prime importance made at the business meeting provided for the merging of the two organizations by January 1, 1937, into a single American Public Works Association. The papers presented at the Congress and reproduced in the "Public Works Engineers' Yearbook, 1937" come under the headings of streets and roads, sewerage and sewage disposal, water supply, refuse collection and disposal, manuals of practice, city planning and housing, and traffic safety. 300 pp. (Apply to the American Public Works Association, 850 E. 58th St., Chicago, Ill.)

Land Utilization

A new publication entitled "Housing and City Planning, 1936," edited by Arthur C. Holden and Oscar Fisher, summarizes the research work of the technical staff under the direction of the Land Utilization Committee of the New York Building Congress. Headed by a brief summary of the work, the chapters deal in succession with the subjects of family rental intervals, trends in mortgage finance, group action for property control, local district planning, family income and rents, city planning, and procedure and law as related to housing and city planning. Some real light is thrown upon the problem of land use, and constructive recommendations are given for its better utilization. 100 pp.; 123 illustrations, diagrams, graphs, plans. $5.00 per copy, or $3.00 each in lots of 5 or more. (Apply to the Land Utilization Committee of the New York Building Congress, 101 Park Ave., New York.)

Prisons

Prisons and Beyond.—By Sanford Bates, United States Director of Prisons. The Macmillan Company, New York. 334 *pp., including appendixes, general and name indexes, and* 18 *illustrations.* $3.50 *from* THE AMERICAN CITY.

In this book Sanford Bates has written, with the authority of almost twenty years of intensive study and wide practical experience, about the various problems of the Federal prison system and those of readjusting a prisoner in society after the prison doors have opened. In its extremely enlightening twenty-eight chapters, there are discussions of "Why Prisons," "Have Our Prisons Failed?", "When Convicts Riot," "Science to the Rescue," "The Paraphernalia of Reform," "Guards or Leaders," "The Prisoner Speaks," "The Prison of the Future," and "Alternatives to Imprisonment."

The Appendixes contain the Declaration of Principles of the American Prison Association as revised and reaffirmed at its Annual Congress in 1930; "Compact of Fair Competition for the Prison Industries of The United States of America"; "Executive Order Establishment of the Prison Industries Reorganization Administration"; and the "Executive Order Creating a Body Corporate to be Known as Federal Prison Industries, Inc."

The general index of subjects and the index of names of persons quoted therein adds to the value of this book as a reference volume.

Housing

The New York City Housing Authority has published "A Note on Site and Unit Planning," prepared by Frederick L. Ackerman and William F. R. Ballard. It is not a presentation of an isolated utopia of thrilling plans, but rather an inquiry into the problem which confronts those actually engaged in planning areas for residential use under a debt economy and a constitution which sets its face against collective action. The technician is bound to feel his frontiers restricted when he cannot act on a large scale nor find a place to apply his findings; yet this does not excuse him from the task of exploring uncharted fields for his technique. This publication presents the basic physical factors in site planning and makes a considerable study of cost-of-use relatives arising out of the use of different features in different arrangements. 69 pp.; charts and diagrams. $1.50. (Apply to the New York City Housing Authority, 10 E. 40th St., New York.)

Since housing is a current topic of discussion in many political and economic circles, it has seemed advisable, for the benefit of all concerned, to establish uniform definitions of the many vague terms so variously employed in this field. Consequently, a committee from five principal Federal agencies concerned with housing has compiled and published "A Glossary of Housing Terms." Words have been chosen from the related fields of accounting, appraisal, assessment, construction, economics, engineering, finance, law, real estate, sociology, town planning and zoning, and the definitions are simple but of wide scope. 88 pp. (Apply to the Central Housing Committee, North Interior Building, Washington, D. C.)

The Housing Division of the PWA has published a new pamphlet entitled "Houses for Workers." Presented in a simple form, this publication is planned for use in adult education classes in housing conducted by the Educational Division of the WPA. The need for housing is clearly demonstrated, standards are outlined, and ways and means of bringing about the building of good low-rent housing are indicated. Study questions are given at the end of each chapter, and a basic bibliography is included. 87 pp. (Apply to Government Printing Office, Washington, D. C.)

The Syracuse Housing Authority has recently completed two reports for publication. The first is a summary of a survey of housing conditions in Syracuse entitled "Housing and Living Conditions." The second, entitled "Tentative Minimum Housing Standards," proposes both minimum construction and condition standards and minimum yard and neighborhood standards. 12 and 21 pp. respectively. (Apply to the Syracuse Housing Authority, 401 Clinton Sq. Bldg., Syracuse, N. Y.)

Sewage Treatment

The Harvard Graduate School of Engineering has added two reprints from the *Sewage Works Journal*, January, 1937, to its list of publications. The papers are "Observations on the Digestion of a Sewage Sludge over a Wide Range of Temperatures" by Gordon M. Fair and Edward W. Moore, and "The Oxygen Demand of Mixtures of Activated Sludge and Sewage" by Edward W. Moore. 3 + 10 pp. 25c. (Apply to Graduate School of Engineering, Harvard University, Cambridge, Mass.).

Water Resources

"Drainage Basin Problems and Programs" is a report of the National Resources Committee which was undertaken for the purpose of determining the principal water problems in the various drainage areas of the country, outlining an integrated pattern of water development and control, and presenting a schedule of specific construction and investigation projects. The project lists provide enough important undertakings to keep us busy for ten years or more. The importance of our water resources and their relation to land uses cannot be overestimated in the progress of civilization. This report is extremely valuable as the first coordinated attempt to formulate a nation-wide water plan and program through the joint efforts of Federal, state, and local agencies, official and non-official. viii + 540 pp. $1.50. (Apply to Supt. of Documents, Washington, D. C.)

Public Works

A Grey-Blue Report entitled "Planning of Public Works in Relation to Employment" is ready for submission to the 1937 session of the International Labor Conference for preliminary discussion and a final decision. Part I, prepared for the purposes of preliminary discussion, outlines the law and practice in the different countries and concludes with a list of points suggested as a basis for a questionnaire. Part II contains proposals for international regulations which the Conference could consider for a final decision, dispensing with the preliminary discussion. 273 pp. (Apply to the International Labor Office, Geneva, Switzerland.)

Other Reports Received

ATLANTA, GA.—"Facts in Figures About Atlanta," published by the Atlanta Chamber of Commerce. 40 pp.

CHAMPAIGN COUNTY, ILL.—"A Regional Planning Program for Champaign County, Illinois." Regional Planning Commission of Champaign County, Urbana, Ill., 1937. 32 pp.

CINCINNATI, OHIO.—Municipal Activities, 1936. 78 pp.

DALLAS, TEXAS.—Annual Report, 1936. 50 pp.

DETROIT, MICH.—Annual Report, Detroit City Plan Commission, 1936. 11 pp.

EAST CLEVELAND, OHIO.—Report to Citizens for Years 1935 and 1936. 4 pp.

FREDERICKSBURG, VA.—Annual Report, 1936. 64 pp.

HARTFORD, CONN.—Annual Report, Department of Engineering, year ending March 31, 1936. 57 pp.

JAMESTOWN, N. Y.—Annual Message of the Mayor and Report of City Comptroller, 1936. 47 pp.

MONTCLAIR, N. J.—"Montclair Matters, Relief in Montclair," published by the Montclair Association. 10 pp.

NEW YORK, N. Y.—"Report to Hon. Frank J. Taylor, Comptroller of the City of New York on Industrial Survey of New York City, Second Phase," by Charles E. Murphy. 21 pp.

PRINCETON, N. J.—"Local Government in New Jersey, The Thorny Question of Personnel," Princeton Local Government Survey. 47 pp.

SAN FRANCISCO, CALIF.—Report, Public Utilities Commission, 1935-1936. 211 pp.

TORONTO, CANADA.—Annual Report, Department of Street Cleaning, 1936. 32 pp.

WAYNE COUNTY (DETROIT), MICH.—Annual Report, Board of County Road Commissioners, 1936. 108 pp.

WEST BEND, WIS.—Municipal Activities, 1936. 48 pp.

WINNIPEG, MANITOBA.—Annual Report, City of Winnipeg Hydro Electric System, 1936. 26 pp.

MUD-JACK METHOD

Sunken concrete slab is raised to correct grade by the Mud-Jack Method — preventing breakage of the slab and eliminating reconstruction costs.

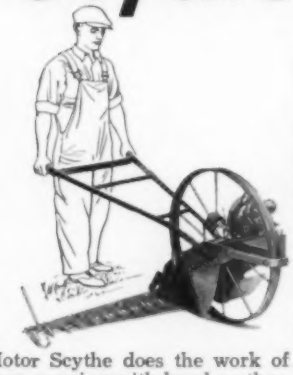
Increase the life of concrete slab by the Mud-Jack Method. Write for information about economical maintenance of curb, gutter, and sidewalk slab.

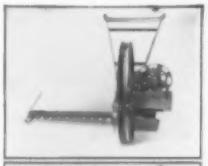
KOEHRING COMPANY
Pavers · Mixers · Shovels · Cranes
3026 WEST CONCORDIA AVE.
Draglines · Dumptors · Mud-Jacks
MILWAUKEE, WISCONSIN

Motor Scythe

The One-Man Gang

Operates One Hour on Pint of Fuel





● Motor Scythe does the work of six men mowing with hand scythes. Performance on leading railroads proves it pays for itself in almost no time. Built to take the punishment of rough going! Easily operated by anyone.
36 in. cutting bar mows a 30 in. swath. Economical air-cooled motor. Weighs 135 pounds; list price, $125.00 F.O.B. Detroit. Write for complete information.

Detroit Harvester Company
5455 W. Jefferson Ave., Detroit, Mich.

Detroit Harvester MOTOR SCYTHE

Water Works Supts.!!

INERTOL RAMUC ENAMEL

Paint the inside of your concrete filter boxes with RAMUC Enamels in gleaming White, Ivory, Light Green and many other beautiful colors. Result: A smooth, tile-like finish, which shows up the water wonderfully clear, keeps itself clean and retards algae and mud ball formation.

Write for complete details to:

INERTOL COMPANY, Inc.
401 Brodway New York, N. Y.
Branch: 447 Sutter St., San Francisco, Calif.

INERTOL RAMUC ENAMEL

We grow a complete assortment of
Northern-grown specimen
Trees—Shrubs—Evergreens and
other ornamentals
for
Park, Streets, and Municipal plantings.

Consultations and inquiries invited

PONTIAC NURSERIES

ROMEO, MICHIGAN

Conventions -- When and Where

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

MAY 6-7.—WILMINGTON, DEL. (125)
Maryland-Delaware Water and Sewerage Association. Annual conference. Secretary, A. W. Blohm, 2411 North Charles Street, Baltimore, Md.

MAY 10-14.—CHICAGO, ILL. (500)
National Fire Protection Association. Meeting. (Congress Hotel.) Managing Director, Franklin H. Wentworth, 60 Batterymarch Street, Boston.

MAY 12-13.—COLUMBIA, MO.
Missouri Association of Mayors and Other Municipal Officials. Annual meeting. (Tiger Hotel.) Executive Secretary, George A. Spencer, 412 Guitar Building, Columbia, Mo.

MAY 17-21.—ATLANTIC CITY, N. J. (1,000)
National Recreation Association. Congress. (Ambassador Hotel.) Administrative Secretary, Thomas E. Rivers, 315 Fourth Avenue, New York.

MAY 18-19.—BELLINGHAM, WASH.
Association of Washington Cities. Annual convention. (Bellingham Hotel.) Secretary, Russell W. Barthell, University of Washington, Seattle, Wash.

MAY 18-20.—MILWAUKEE, WIS.
National County Officers' Association. Convention. (Schroeder Hotel.) President, George F. Breithach, Court House, Milwaukee, Wis.

MAY 20-22.—VICTORIA, B. C.
American Water Works Association—Pacific Northwest Section. Annual meeting. (Empress Hotel.) Secretary, Fred Merryfield, Oregon State College, Corvallis, Ore.

MAY 21.—NEWARK, N. J.
American Water Works Association—New Jersey Section. Annual meeting. (Essex House.) Secretary, P. S. Wilson, 325 Washington Street, Glen Ridge, N. J.

MAY 21-22.—STATE COLLEGE, PA. (75)
Pennsylvania Association of Planning Commissioners. Annual convention. Secretary-Treasurer, Arthur Cassell, City Planning Commission, Allentown, Pa.

MAY 24-25.—MARSHALL, MO.
Missouri Association of Municipal Utilities. Annual convention. Secretary-Treasurer, W. J. McCarroll, Fulton, Mo.

MAY 31-JUNE 3.—DETROIT, MICH.
Joint meeting. (Hotel Statler.) *American Planning and Civic Association.* Executive Secretary, Miss Harlean James, 901-03 Union Trust Building, Washington, D. C. *American Society of Planning Officials.* Executive Secretary, Walter H. Blucher, 850 East 58th Street, Chicago, Ill.

JUNE 3-5.—WASHINGTON, D. C. (500)
Eastern Association of Fire Chiefs. Annual convention. (Mayflower Hotel.) Secretary, Charles E. Clark, Box 217, Wayne, Pa.

JUNE 3-5.—UTICA, N. Y. (200)
New York State Sewage Works Association. (Hotel Martin.) Secretary-Treasurer, A. S. Bedell, State Department of Health, Albany, N. Y.

JUNE 7-11.—BUFFALO, N. Y.
American Water Works Association. Annual convention. (Statler Hotel.) Secretary, Harry E. Jordan, 29 West 39th Street, New York.

JUNE 10-12.—SWARTHMORE, PA.
Joint meeting. Pennsylvania Parks Association. Secretary, Herman Cope, 35 North 6th Street, Philadelphia, Pa. *National Conference on State Parks.* Executive Secretary, Miss Harlean James, 901 Union Trust Bldg., Washington, D. C.

JUNE 14-15.—ABERDEEN, S. DAK. (200)
League of South Dakota Municipalities. Annual convention. (Ward Hotel.) Secretary, Dr. G. R. Breckenridge, University of South Dakota, Vermillion, S. Dak.

JUNE 16-17.—WAUKEGAN, ILL. (150)
Illinois Association of Sanitary Districts. Annual convention. (Karcher Hotel.) Secretary-Treasurer, G. H. Radebaugh, Urbana, Ill.

JUNE 16-18.—FARIBAULT, MINN. (300)
League of Minnesota Municipalities. Annual convention. Executive Secretary, C. C. Ludwig, University of Minnesota, Minneapolis, Minn.

JUNE 17-19.—OTTAWA, ONT. (300)
Canadian Public Health Association. Annual meeting. (Chateau Laurier.) General Secretary, Dr. J. T. Phair, Spadina House, Toronto, Ont.

JUNE 21-26.—NEW YORK. (3,500)
American Library Association. Annual conference. (Waldorf-Astoria Hotel.) Sec., Carl H. Milam, 520 North Michigan Avenue, Chicago, Ill.

JUNE 21-23.—STATE COLLEGE, PA. (150)
Pennsylvania Sewage Works Association. Annual conference. (Home Economics Building of the College Hotel—Nittany Lion.) Sec., L. D. Matter, Kirby Health Center, Wilkes-Barre, Pa.

JUNE 22-24.—DIXVILLE NOTCH, N. H. (800)
New England Association of Fire Chiefs. Annual convention. (Balsams Hotel.) Secretary-Treasurer, John W. O'Hearn, 99 Main Street, Watertown, Mass.

JUNE 23-25.—STATE COLLEGE, PA. (300)
Pennsylvania Water Works Operators' Association. Annual convention. (Pennsylvania State College.) Secretary-Treasurer, I. M. Glace, 22 South 22d Street, Harrisburg, Pa.

JUNE 28-30.—ELIZABETH, N. J.
Associated Municipal Signal Services. Annual convention. (Elizabeth Carteret Hotel.) Secretary, William F. Franklin, 420 Lexington Avenue, New York.

JUNE 28-30.—SARATOGA SPRINGS, N. Y. (600)
Conference of Mayors and Other Municipal Officials of the State of New York. Annual convention. Secretary, William P. Capes, City Hall, Albany, N. Y.

JULY 5-11—PARIS, FRANCE.
International Union of Local Authorities. Conference. Address: Clifford W. Ham, Executive Director, American Municipal Association, 850 East 58th Street, Chicago, Ill.

JULY 5-13.—PARIS, FRANCE.
Housing and Town Planning Congress. International Federation of Housing and Town Planning. General Secretary, Donald C. L. Murray, 25 Bedford Row, London, W. C. 1, England. *International Housing Association.* General Secretary, Prof. Franz Schuster, Hansa-Allee 27, Frankfort a/M, Germany.

JULY 27-29.—NEW YORK.
New York State Association of Chiefs of Police. Annual convention. (Astor Hotel.) Secretary-Treasurer, James L. Hyatt, 503 Western Avenue, Albany, N. Y.

AUGUST 15-21.—EVANSTON, ILL. (300)
National Institute for Commercial and Trade Organization Executives. Annual meeting. (Northwestern University.) Secretary, C. R. Miles, 836 First National Bank Bldg., Chicago, Ill.

AUGUST 18-20.—DEARBORN, MICH.
American Water Works Association—Central States Section. Annual meeting. (Dearborn Inn.) Secretary, H. L. Nelson, 2122 Koppers Building, Pittsburgh, Pa.

AUGUST 30-SEPTEMBER 1.—ATLANTIC CITY, N. J.
National Identification Association. Annual convention. (Hotel Madison.) Secretary-Treasurer, E. W. Livingston, Jamesville, N. Y.

AUGUST 30 - SEPTEMBER 2. — CLEVELAND, OHIO. (1,000)
National Municipal Signal Association. Annual convention. (Hotel Statler.) Secretary, Irvin Shulsinger, 7 East 42d Street, New York.

SEPTEMBER 13-16.—BOSTON, MASS. (200)
Municipal Finance Officers' Association of the United States and Canada. Annual convention. Executive Director, Carl H. Chatters, 850 East 58th Street, Chicago, Ill.

SEPTEMBER 13-14.—WINSTON-SALEM, N. C.
North Carolina League of Municipalities. Annual convention. (Hotel Robert E. Lee.) Secretary, Patrick Healy, Jr., Capital Club Building, Raleigh, N. C.

SEPTEMBER 15-17.—AURORA, ILL. (350)
Illinois Municipal League. Annual convention. Secretary, A. D. McLarty, 500 East Capitol Avenue, Springfield, Ill.

SEPTEMBER 16-17.—FOND DU LAC, WIS. (700)
League of Wisconsin Municipalities. Annual convention. (Hotel Retlaw.) Secretary, Frederick MacMillin, 114 N. Carroll St., Madison, Wi.

SEPTEMBER 20-22.—SANTA FE, N. MEX.
American Water Works Association—Rocky Mountain Section. Annual meeting. (LaFonda Hotel.) Secretary-Treasurer, B. V. Howe, 437 State Office Building, Denver, Colo.

SEPTEMBER 20-21.—VIRGINIA BEACH, VA. (500)
League of Virginia Municipalities. Annual convention. (Cavalier Hotel.) Executive Secretary, Morton L. Wallerstein, 902 Travelers Building, Richmond, Va.

SEPTEMBER 27-30.—FORT WORTH, TEXAS.
American Institute of Park Executives and the American Park Society. Annual convention. Executive Secretary, Will O. Doolittle, Box 422, Tulsa, Okla.

SEPTEMBER 27, WEEK OF.—WHITE SULPHUR SPRINGS, W. VA.
Illuminating Engineering Society. Annual convention. (Hotel Greenbrier.) General Secretary, A. D. Cameron, 51 Madison Avenue, New York.

OCTOBER 4-6.—ATLANTA, GA. (350)
American Public Works Association. Congress. (Atlanta Biltmore Hotel.) Executive Director, Frank W. Herring, 850 East 58th St., Chicago, Ill.

OCTOBER 4-7.—BALTIMORE, MD. (1,000)
International Association of Chiefs of Police. Annual convention. Secretary, George Black, Wilmington, Del.

OCTOBER 5-7.—NEW YORK.
American Public Health Association. Annual meeting. Executive Secretary, Dr. Reginald M. Atwater, 50 West 50th Street, New York.

OCTOBER 5-7.—OMAHA, NEBR.
League of Nebraska Municipalities. Annual convention. (Hotel Fontenelle.) Secretary-Treasurer, C. E. Beals, 204 Brownell Building, Lincoln, Nebr.

OCTOBER 10-12.—KANSAS CITY, MO. (100)
Institute of Traffic Engineers. Annual meeting. (Hotel President.) Secretary-Treasurer, Harold F. Hammond, National Bureau of Casualty and Surety Underwriters, 1 Park Avenue, New York.

OCTOBER 11-14.—AUSTIN, TEXAS.
American Water Works Association—Southwest Section. Annual meeting. Secretary-Treasurer, Lewis A. Quigley, 3320 West Berry Street, Fort Worth, Texas.

OCTOBER 11-15.—KANSAS CITY, MO.
National Safety Council. Annual congress. Managing Director, W. H. Cameron, 20 North Wacker Drive, Chicago, Ill.

OCTOBER 13-15.—ATLANTIC CITY, N. J. (200)
Pennsylvania Water Works Association. Annual meeting and convention. (Haddon Hall.) Secretary, Dr. F. Herbert Snow, 327 Telegraph Building, Harrisburg, Pa.

OCTOBER 18-20.—NEW ORLEANS, LA.
International City Managers' Association. Annual convention. Executive Director, Clarence E. Ridley, 850 East 58th Street, Chicago, Ill.

OCTOBER 19-22.—OKLAHOMA CITY, OKLA.
International Association of Fire Chiefs. Annual conference. (New Municipal Auditorium.) Secretary, James J. Mulcahey, 16 Franklin Avenue, Yonkers, N. Y.

OCTOBER 19-20.—CINCINNATI, OHIO.
Ohio Conference on Sewage Treatment. Annual convention. (Netherland Plaza Hotel.) Secretary, B. M. McDill, Department of Health, Columbus, Ohio.

OCTOBER 20-23.—SACRAMENTO, CALIF.
American Water Works Association—California Section. Annual meeting. (Senator Hotel.) Secretary-Treasurer, Carl M. Hoskinson, Chief Engineer, Division of Water, Sacramento, Calif.

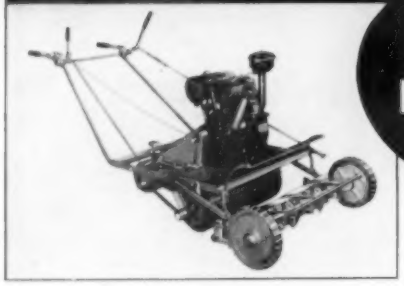
OCTOBER 20-23.—NEW YORK. (200)
National Association of Assessing Officers. Annual convention. Executive Director, Carl H. Chatters, 850 East 58th Street, Chicago, Ill.

NOVEMBER 4-6.—OMAHA, NEBR.
American Water Works Association—Missouri Valley Section. Annual meeting. (Hotel Fontenelle.) Secretary, Earl L. Waterman, University of Iowa, Iowa City, Iowa.

NOVEMBER 18-20.—ROCHESTER, N. Y.
National Municipal League. Annual meeting. (Seneca Hotel.) Secretary, Howard P. Jones, 309 East 34th Street, New York.

THE FIRST CHOICE OF THOUSANDS OF USERS

IDEAL MASTER



The Ideal Master has established an enviable record for economy. It is equipped with a high-speed engine that provides maximum flexibility and a wide range of operating speeds. Power is applied through the twin-disc clutch by chain drive to the traction rollers. Cutting unit, mounted ahead of the roller is attached to the frame by side arms that leave the unit free to follow ground contours. Write for the complete Ideal file. It contains valuable mower information.

STURDY—DEPENDABLE

THE IDEAL VICTOR

The Ideal Victor, by itself or as an auxiliary unit provides fast, economical, clean cutting. It has ample power for large areas and is easy to handle in the "tight" places. Will climb 20% to 35% grades. Entire mechanism is easily accessible for adjustments. Write for complete information.

IDEAL POWER LAWN MOWER CO.

400 Kalamazoo Street, Lansing, Michigan

New York Branch:
12 Harrison Street, New Rochelle, N. Y.

Canadian Distributors:
Aikenhead Hardware Ltd., 17 Temperance St., Toronto, Ont.

ANHYDREX
RUBBER INSULATION
FOR WIRES AND CABLES

With ANHYDREX insulation lead sheaths and other metallic coverings may safely be omitted from submarine or underground power cables, thereby doing away with the possibility of electrolysis, crystallization and sheath currents. ANHYDREX does not absorb moisture. It has the electrical properties of high-grade rubber insulation.

●

Descriptive booklet "ANHYDREX Rubber Insulation" upon request.

●

SIMPLEX WIRE & CABLE CO.

79 Sidney Street, Cambridge A
BOSTON, MASS.

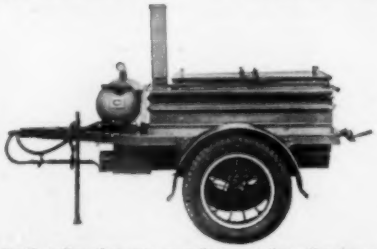
GET THIS CATALOG OF *SAFETY* PLAYGROUND EQUIPMENT

EVERWEAR Playground apparatus gives you durability and playability *plus* guaranteed SAFETY.

Send TODAY for the FREE 1937 EVERWEAR Catalog 28 containing full details of a complete selection of playground equipment. For description of EVERWEAR beach and pool equipment, ask for Catalog 28W. Address Dept. A.

EverWear
Manufacturing Company
Springfield, Ohio

SPEED UP WORK BY USING



A Connery Style "W" oil-burning kettle for highway maintenance work. Here's a kettle that answers all requirements:—low fuel cost, quick heating and fast towing.

Send today for our complete catalog showing our full line of Tar and Asphalt Heating Kettles, Spraying Attachments, Pouring Pots, etc.

CONNERY CONSTRUCTION COMPANY
4000 North Second St. Philadelphia, Pa.

News and Illustrations

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Norwood Reorganized

Norwood Engineering Co., Florence, Mass., has been discharged from receivership by the Federal Court in Boston as of March 30, and the company has been reorganized. Norwood Engineering Co., which has manufactured municipal and industrial filters for over 40 years, has always been solvent, but was placed in receivership some time ago in order to conserve the assets of the company. Howard W. Hosford and G. Wilson MacDow, the company's chief executives, have been acting as receivers.

The reorganized company will have the corporate name of The Norwood Engineering Co. Howard W. Hosford, who has been associated with the present company for 36 years and has been President and General Manager since 1917, will continue to serve in the same capacities, and G. Wilson MacDow, who has been Treasurer of the company for a number of years, will be Treasurer and Clerk of the reorganized company. These two, with three local Northampton business men, will be the directors of the company.

Motor-Truck Models Completely Changed

A complete new line of International motor trucks consisting of 25 models, 77 wheelbases, and sizes ranging from ½-ton to 10- to 15-ton six-wheeler models, has been developed by International Harvester Co., 606 South Michigan Avenue, Chicago, Ill. This is the first time that the International motor-truck line has been so completely changed at one time. Not only have many engineering improvements been incorporated in the design of these new motor trucks to make them sturdier and more economical to operate, but much thought has been devoted to streamlined styling. The first series of these new trucks was given various engineering department tests and then sent out on the road and given a most severe set of road tests by the sales department.

These new Internationals provide standardized S.A.E. cab-to-rear-axle dimensions which are necessary to body interchangeability, and they also permit mounting of standard length bodies of stock sizes. All International truck engines are designed and built for truck service. The types FA and FB valve-in-head engines which power the 2-ton and larger Internationals have replaceable cylinders; counterbalanced, vibration-damped crankshafts; full-pressure lubrication; precision-type, replaceable-shell, main and connecting-rod bearings; hardened exhaust-valve seat inserts; down-draft carburetion; scientifically designed manifolds; oil-bath air cleaners; air-cooled generators; and other outstanding features. The HD type L-head engines, which power the ½- and ¾-ton models, have a displacement of 213 inches, and the engine in the 1½-ton models has a displacement of 232 inches.

Hydraulic brakes are standard equipment on all International models, from the light delivery units to the 4- to 5-ton double-reduction drive Model DR-60. These internal-expanding, self-energizing, two-shoe, hydraulic brakes provide maximum stopping ability for heavy loads. Standard equipment on the larger units includes factory-installed booster brakes of the vacuum-suspended type. Air brakes are standard equipment on the Model DR-70 and the larger 6-wheel units. These trucks have full-floating rear axles, except on the ½-ton models; roller-bearing, anti-friction type universal joints; self-aligning propeller-shaft center bearings on the long wheel chassis; and other features.

The trucks have new all-steel cabs which are roomy, providing ample leg and head room.

Portable Traffic Light Made for School Use

A portable electric traffic light for use at schools to insure a greater measure of protection for school children while crossing the streets near school buildings has been developed by the Lewis Manufacturing Co., Decatur, Ill. The light has already met with the endorsement of motorists because it is used only at times when children are crossing the streets and then can be removed from the street, leaving traffic unimpeded for motorists.

To install this light, a permanent base is placed in the street, from which wires carrying the electric currrent are run through an underground conduit to the curb, where they connect with the feed wires. The light standard is slipped into the base, and immediately the signal begins to function. To remove the traffic signal it is merely lifted out of the base and taken from the street. The signal carries green, amber and red lights on all four sides. It operates automatically and may be timed as desired for traffic conditions. It is reported that educators find that this traffic signal provides a fine training for children in crossing streets protected by traffic lights.

THE LEWIS PORTABLE ELECTRIC TRAFFIC LIGHT

TESTING ONE OF THE NEW INTERNATIONAL TRUCKS AT CRITICAL SPEED OVER WASHBOARD ROADS IN SOUTHERN GEORGIA

A Popular Swim Pool

contains water that is actually "pure enough to drink" —water that is crystal-clear and kept in circulation by continuous passing through a purifying unit. Graver Units have given dependable service for many years in some of the country's outstanding pools. They are easy and economical to operate, long lived.

If you are planning a pool, get the informative Graver book on Design, Construction and Operation of Modern Pools, sent free on request.

GRAVER TANK & MFG. CO., INC.

75 Years of Dependable Service

New York, N. Y. Chicago, Ill. East Chicago, Ind.
Catasauqua, Pa.

GRAVER

KILLS BINDWEED

BINDWEED is tough — but not tough enough to stand up against Dolge Weed-Killer. This powerful chemical, diluted 1-to-20 kills bindweed and other rank, deep-rooted, resistant growth, such as wild morning glory, crab grass, wire grass, burdock. Kills even poison ivy and thistles when used according to directions. For ordinary growth on drives, walks, gutters, Dolge Weed-Killer dilutes 1-to-40. One gallon, so diluted, covers 1,250 square feet on the average. Brings cost of material down to less than 10c for 100 square feet. Please write for details and quotations.

DOLGE WEED-KILLER

The C. B. Dolge Co. Westport, Conn.

THE NEW UNIVERSAL-HOUGH SPRINKLER-SWEEPER

AT LAST!!

An Efficient, Low-Priced

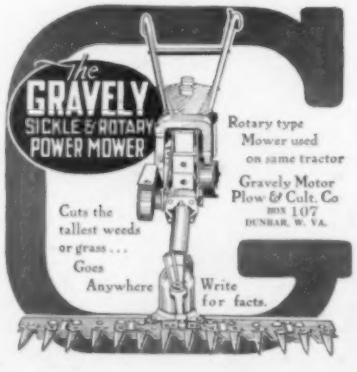
STREET SWEEPER

$1225.00
(F.O.B. Factory)

For Town, City or Metropolis—May We Send Literature?

Manufactured by

THE FRANK G. HOUGH COMPANY
919 N. MICHIGAN AVE. CHICAGO



HOTEL LENOX

Why Pay More?

—for first class hotel accommodations, when you can enjoy the fine hospitality, convenient location and excellent service of Hotel Lenox at these moderate rates—

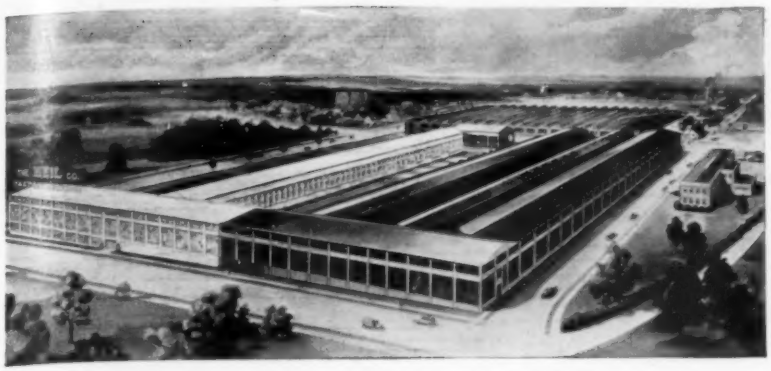
RATES

Single.....$2.00 to $3.00
Double..... 3.00 to 5.00

Special for 2 Rooms and Bath
3 persons...$5.00. 4 persons...$6.00
Send for free AAA road map and folder containing handy map of downtown Buffalo.

Clarence A. Miner, President
140 North St., near Delaware

BUFFALO, N. Y.



THE EXPANSION OF THE HEIL COMPANY PLANT AT MILWAUKEE, WIS.

Heil Adds to Factory

Ground has been broken for the construction of an addition to the factory of The Heil Co., Milwaukee, Wis., which will add 75,000 square feet of floor space to the present 400,000 square feet. The expansion was necessitated by the increased business in all departments, but especially in the Hoist and Body Division. The entire structure will be in the form of a T, adjoining the present building, and is to be completed and ready for manufacturing operations by June 1.

Building of the new addition marks the fourth major expansion program in the history of The Heil Co., which was started by Julius P. Heil as the Heil Rail Joint Welding Co. in 1901. In 1908 larger quarters were built. Business continued to grow, and twice in subsequent years the firm has increased its facilities.

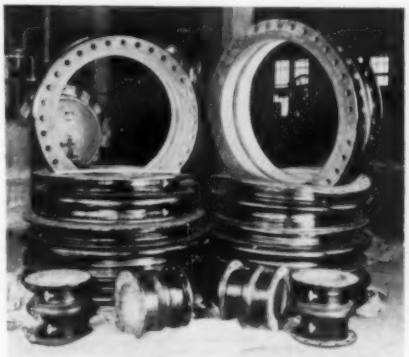
Valves and Hydrants for N. Y. World's Fair

The A. P. Smith Manufacturing Co., East Orange, N. J., was given the order for the 6-, 8-, 10-, 12- and 20-inch valves and some hydrants in connection with the first water-main installation for the New York World's Fair of 1939. The first contract for the laying of pipe and setting of valves and hydrants for the Fair was awarded to John H. Knight, Inc., which placed the order with The A. P. Smith Manufacturing Co.

Expansion Joints of Rubber for Sewage Blowers

Among the equipment recently installed at the new Easterly sewage-treatment plant in Cleveland, Ohio, is a battery of centrifugal blowers. These units are capable of moving 170,000 cubic feet of air per minute, and the largest unit has a capacity of 40,000 cubic feet. The intake line on each blower has a suction vacuum of 10 inches of water, and the outlet has a discharge pressure of 7½ pounds.

Provision for expansion and contraction of these lines, due to frequent thermal changes, has been made by installing special rubber expansion joints designed by and made by The B. F. Goodrich Co., Akron, Ohio. In addition to absorbing movement of the lines, use of these joints on the outlets prevents vibration from being transferred from the blower to the distribution line. The rubber for the joints is specially compounded for long aging qualities and resistance to continual flexing. Extra strength is obtained through a 2-ply cord fabric reinforcement. The joints used on the intake line have an added double wire reinforcement to enable them to withstand the collapsing pressure.



A GROUP OF RUBBER JOINTS USED ON THE CENTRIFUGAL BLOWERS AT THE EASTERLY SEWAGE-TREATMENT PLANT, CLEVELAND, OHIO

The small joints are for the intake lines, and the large for the outlets

Fedeler Now Sales Manager of Filtration Engineers

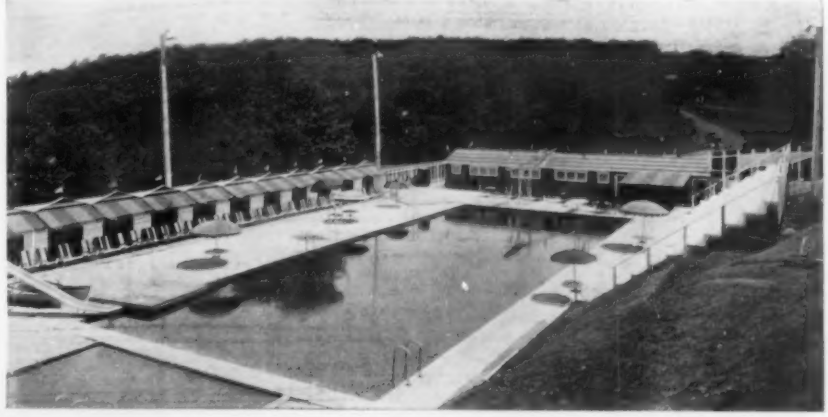
J. H. Fedeler has been appointed Sales Manager of Filtration Engineers, Inc., with offices at the plant, 858 Summer Avenue, Newark, N. J.

All-Steel Swimming Pools

Swimming has swept the country; many new pools are being built by municipalities to meet the increasing "market" for swimming. A perfect pool must be absolutely watertight; it must retain its carefully selected or treated bathing water and exclude all unsanitary ground water. The Pittsburgh-Des Moines Steel Co., 3423 Neville Island, Pittsburgh, Pa., has developed an all-steel swimming pool which is drop-tight when built and remains so. Its flexibility and density enable it to withstand frost action and the movement of the subsoil and surrounding earth without cracking or spalling. The first cost of a steel pool is said to be lower than that of a pool, properly constructed, of other materials. A steel pool requires only a coat of paint at intervals on its interior surface, and periodical painting keeps it new-looking throughout its entire lifetime.

Pittsburgh-Des Moines Steel Co. offers complete construction service embracing many items other than the pool proper. It handles the excavation and grading; the installation of the steel pool with the circulating piping; filters, chlorinator and circulating pumps, with housing and accessories to the pool such as pool cleaners, ladders, diving boards, floats, slides, life-guard chairs, etc.; facilities for guests, such as dressing rooms, showers, toilet facilities, sand beaches, awnings, umbrellas, spectators' seats, refreshment and amusement facilities; electrical work such as power wiring, lights, floodlights, underwater lights, etc.; and the enclosing fence, gates and approach walks.

Bulletin No. 402 issued by the Pittsburgh-Des Moines Steel Co. describes its all-steel swimming pools in considerable detail and shows a number of installations.

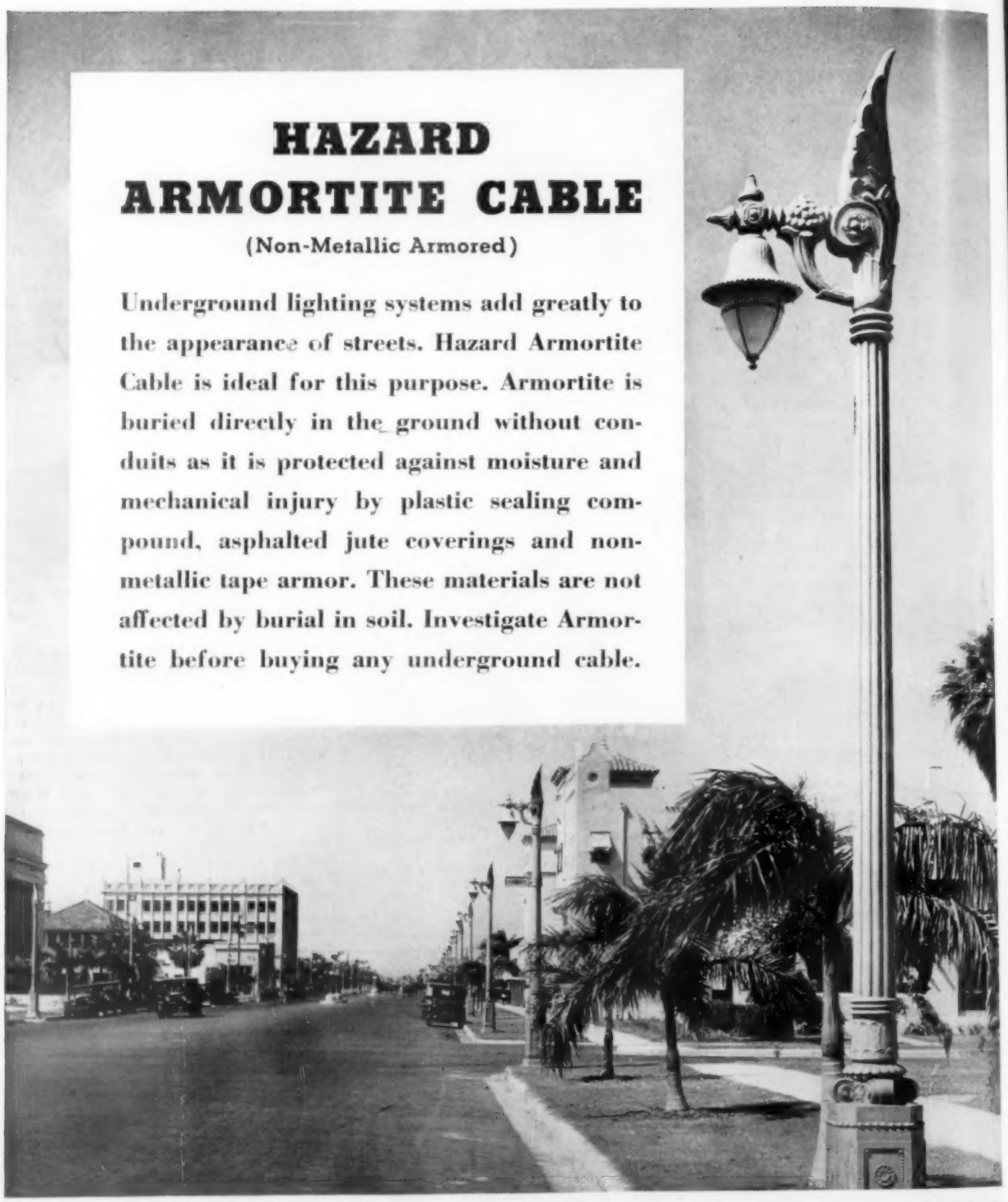


GENERAL VIEW OF A PITTSBURGH-DES MOINES STEEL SWIMMING POOL WITH BATHHOUSE AND CABANAS

HAZARD ARMORTITE CABLE

(Non-Metallic Armored)

Underground lighting systems add greatly to the appearance of streets. Hazard Armortite Cable is ideal for this purpose. Armortite is buried directly in the ground without conduits as it is protected against moisture and mechanical injury by plastic sealing compound, asphalted jute coverings and non-metallic tape armor. These materials are not affected by burial in soil. Investigate Armortite before buying any underground cable.



HAZARD INSULATED WIRE WORKS

Division of The Okonite Company

Works: Wilkes-Barre, Pennsylvania

Sales Offices:

New York Chicago Philadelphia Pittsburgh Buffalo Boston Detroit
Atlanta Seattle Dallas San Francisco Los Angeles Washington

THE NEW GOOD ROADS CHAMPION N & H MECHANICAL CHIP SPREADER

Mechanical Spreader of Large Capacity

A hopper-type chip spreader which is driven by a trailing wheel, and which is quickly attached by two steel bracket arms resting on the rear cross member of the truck frame, has been announced by the Good Roads Machinery Corporation, Kennett Square, Pa. A vertical adjustment of 12 inches in the bracket arms provides for varying heights in truck frames, and a hand operated winch, equipped with a brake and lock, is connected by a steel cable passing through a series of sheave wheels to large hooks which attach to the tail-gate, making the attachment of the spreader to trucks of any height a simple process.

The spreader with its load is carried by the truck and works with equal effectiveness with the truck in reverse or moving forward. The trailing wheel operates a spiral agitator within the hopper, and hinged doors at the base of the hopper permit spreading at various widths. The doors at the outer end are 6 inches wide, and all intermediate doors are 12 inches wide. By opening or closing these doors, variable spreading widths are possible, ranging from 6 inches to 9 feet.

National Meter Promotions

The National Meter Co., 4207 First Avenue, Brooklyn, N. Y., has announced the election of F. J. Bradley as Chairman of the Board of Directors. Mr. Bradley has been President of the company for four years. He started with the company in 1892 as a salesman, and was made the Chicago Branch Manager in 1895.

N. J. Kenny, who joined the company in 1908 in a clerical capacity and was elected Treasurer in 1933, has been elected President.

More Autocar Sales to New York City

Seventy-five additional heavy-duty Autocar trucks have just been purchased by the Department of Sanitation, New York City, to be equipped with 2,500-gallon streamline flusher tanks for cleaning the streets of the city. New York now operates over 400 Autocar flushing units, 50 of which, of the short wheelbase, engine-under-the-seat design, were placed in service during the winter of 1935-36 and were equipped with snow-plows.

The flushers were built to specifications developed by Deputy Commissioner L. G. Kurtz and his staff, under the direction of Commissioner William F. Carey.

Nordloh Joins Cletrac as Advertising Manager

Paul C. Nordloh, for the past three years with Deere & Co., Moline, Ill.,

PAUL C. NORDLOH, ADVERTISING MANAGER, CLEVELAND TRACTOR COMPANY

where he was responsible for a large part of the advertising and sales promotional material used on John Deere tractors, has joined the Cleveland Tractor Co., Cleveland, Ohio, as Advertising Manager. Prior to his association with Deere, he was a copy and idea man with The Procter & Collier advertising agency in Cincinnati.

Chemical Feed Calculator

Industrial Chemical Sales Division, West Virginia Pulp and Paper Co., 230 Park Avenue, New York, has developed a very helpful circular slide rule on celluloid for water-works operators. By a single setting of the rule, it is possible to compute parts per million from a volume of water and a known weight of chemicals; to compute pounds per million gallons, grains per gallon, or even grains per gallon of CaO from lime. The back of the rule also gives practically all the conversion factors that a water-works man needs at the plant. These Chemical Feed Calculators may be secured free by water-works operators by mentioning THE AMERICAN CITY.

Blaw-Knox Acquires Power Piping Co.

The Blaw-Knox Co., Pittsburgh, Pa., has acquired the property and business of the Power Piping Co., also of Pittsburgh. The latter company was organized in 1916 and is engaged in the design, manufacture and erection of piping for power plants, oil refineries, sewage plants, water works, and industrial plant usages. In 1934 it added a sprinkler division.

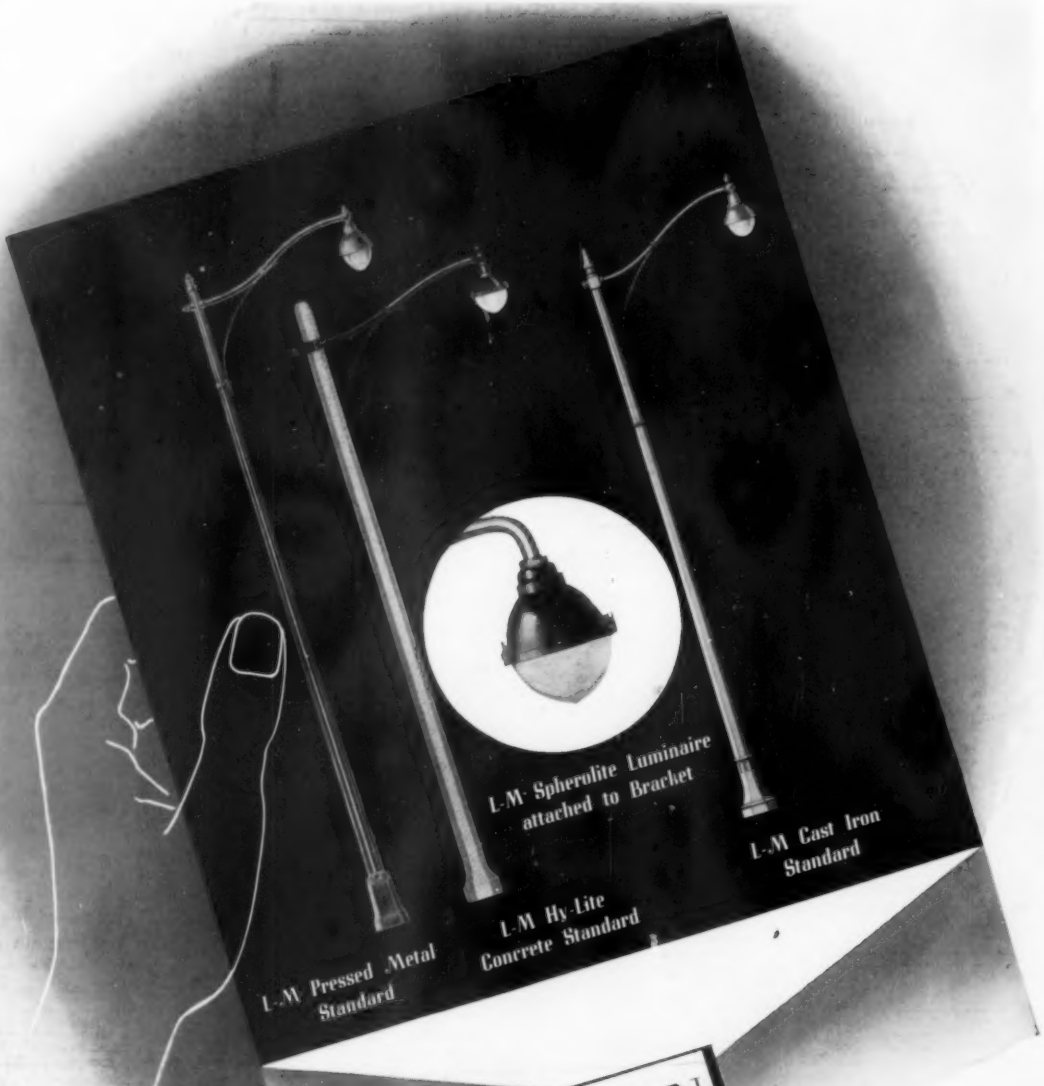
The business will now be operated under the name of Power Piping Corporation, with William V. Quartz in charge.

Power Mower in 5th Year

Going into its sixth year of production, the Evinrude 1937 Lawn-Boy power mower has been still further improved. Rubber-tired wheels are now offered as standard equipment for the protection of concrete and stone walks, monuments and markers, and also to permit more quiet operation when crossing drives and walks.

Another improvement is the new 4-cycle, air-cooled engine with lever starting instead of a cord as formerly required. This mower will run all day on a gallon of gasoline, weighs only 105 pounds, cuts a full 18-inch swatch and can be operated by one hand. Descriptive literature which also covers the Lawn-Boy's grasscatcher may be obtained by writing Evinrude Lawn-Boy, Outboard, Marine & Manufacturing Co., Milwaukee, Wis.

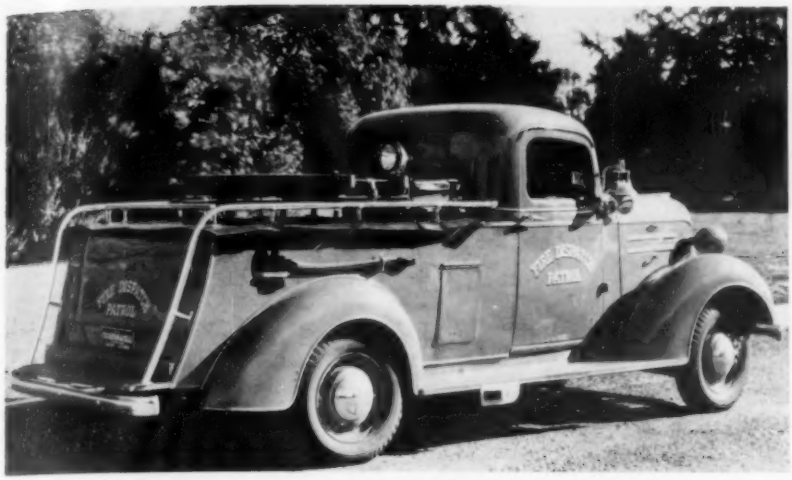
THE NEW EVINRUDE LAWN-BOY


L-M Spherolite Luminaire attached to Bracket
L-M Cast Iron Standard
L-M Hy-Lite Concrete Standard
L-M Pressed Metal Standard

HERE IS DISTINCTION
In Street Lighting Standards

DISTINCTION in the new L-M Pendant Standards and Brackets includes something more than Good Appearance. It also includes Durability and Low Maintenance. You will find these distinctive qualities in every L-M Pendant Standard . . . whether it is built of Cast Iron, Concrete, Pressed Steel or Hewn Cedar. An L-M Illuminating Engineer will gladly study your street lighting problem and recommend the right standard for your needs. Write to South Milwaukee, Wisconsin, for full information on L-M Pendant Standards and L-M Luminaires.

LINE MATERIAL CO.



THE NEW CHEVROLET FIRE AND SALVAGE TRUCK OF THE OAKLAND, CALIF., FIRE DEPARTMENT

Oakland's New Fire and Salvage Truck

F. C. Schwarting, Fire Chief, Oakland, Calif., took delivery of a new specially built Chevrolet fire truck in March. The fire-truck body is mounted on a standard Chevrolet ½-ton chassis and is equipped with all the necessary apparatus for combatting fire and for doing salvage work. The truck has a complete index cabinet containing the names and addresses of every property owner under the protection of the Oakland Department. Chief Schwarting has had 25 Chevrolet units in operation during his 30 years of fire patrol work in Oakland. The truck was sold by Cochran and Celli, Chevrolet dealers in Oakland.

New Electric Heater for Asphalt Plants

An electric heater which is new in the United States but which has a background of success in England is now being built by the Easton Car & Construction Co., Easton, Pa. This new heater employs the Clarmac system of electric heating of bituminous materials, which is said to result in a saving of from 25 to 50 per cent in heating costs as compared with the steam-boiler method, because electricity is more readily controlled, and fuel-handling costs are eliminated as well as stokers, boiler inspection and insurance.

The Easton-Clarmac electric bitumen heater is a rectangular steel tank equipped with electric heating elements uniformly disposed in the bottom of the tank. The number of heating elements required varies according to the size of the tank. They are controlled by switches, permitting as many to be used as needed, under automatic control. A main contactor or magnetic switch actuated by a sensitive thermostatic control automatically maintains the desired temperature of the bitumen.

A gear-type pump submerged in the bitumen just above the heating elements is used to move the asphalt and is driven by a vertical reversible motor located on top of the tank. The supply line is so arranged that while the pump operates continuously the bitumen not drawn off is returned immediately to the heater. At the end of the day's run the pump is reversed and the pipe line emptied when the pump is turned off for the night.

The tank or heater should be insulated and set on a small concrete foundation, and housed in an economical building for the protection of the electrical apparatus. The Easton-Clarmac system is also applicable to existing storage tanks for maintaining the bitumen in them at a pumping temperature. In cases where delivery of the bitumen is made by rail, a small portable steam boiler can be used when necessary for raising the bitumen in the railroad tank cars to pumping temperature.

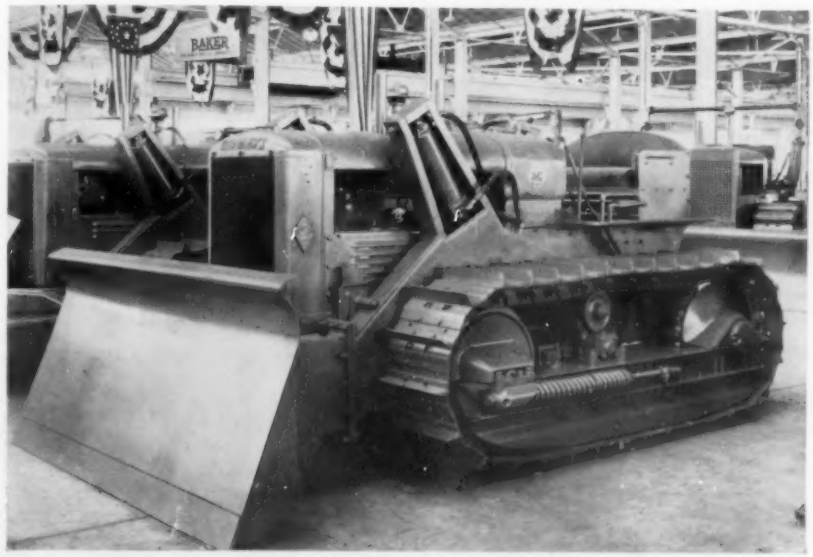
These bitumen heaters are furnished in any desired capacity, but usually large enough to contain either the average or maximum day's supply of bitumen for the asphalt plant. The 3,000-gallon heater measures approximately 7 x 7 x 10 feet

Allis-Chalmers Opens New Large Plant in Springfield, Ill.

The greatest sales conference and equipment show ever conducted by Allis-Chalmers Manufacturing Co., was held March 18-20 at Springfield, Ill., with 700 dealers, dealer salesmen and company men in attendance. The occasion was the opening of a new million-dollar addition to the factory at Springfield, which doubles the company's production capacity in track-type tractors.

The half-million-dollar display of Allis-Chalmers tractors and allied equipment occupied more than 30,000 square feet. In addition to a complete line of A-C track-type and wheel-type tractors, Speed Patrols, blade graders, power units and Speed Ace hauling units, the exhibit included more than 100 units of allied equipment to work with the tractors.

Among the allied equipment shown with the various tractor models were: Continental 2-wheel scrapers; Gar Wood and Ateco 4-wheel scrapers; Baker bulldozers, Gradebuilders, road discs, road rooters and snow-plows; Century 35 dual-control grader; Gar Wood bulldozers and roadbuilders; Ateco hydraulic and cable roadbuilders, cable hoists and sheepsfoot tampers; Blaw-Knox bottomless scrapers; Knapp hydraulic scrapers, rippers, hydraulic pumps and dump bodies; Isaacson Towinch and Winchoists; Silent Hoist power swing boom crane and drum winches; Hughes-Keenan Roustabout crane; Harnischfeger V-type sidewalk snow-plow; Hough loader-digger and transport buggy; Carco Yarders, single- and double-drum hoists and roadbuilders; and Trackson pipe boom and wagons. W. A. Roberts is General Sales Manager of the Allis-Chalmers Tractor Division.



ONE OF THE EXHIBITS AT THE ALLIS-CHALMERS SHOW—A MODEL S-O CONTROLLED IGNITION OIL TRACTOR WITH A BAKER BULLDOZER

THERE'S SOMETHING WRONG WITH THIS KIND OF BALANCE

Amazing as it may seem, sixty per cent of today's traffic accidents occur at night *when there is only one-fifth the total traffic!*

In other words, six out of every ten traffic accidents occur when eight out of every ten cars are off the streets . . . *at night.*

While improved visibility conditions through better street lighting at night is the obvious answer to this problem, any approach to improved street lighting today must be made from a new technique . . . a technique dictated by modern traffic problems and modern motorcar design.

WESTINGHOUSE REFLECTOLUX

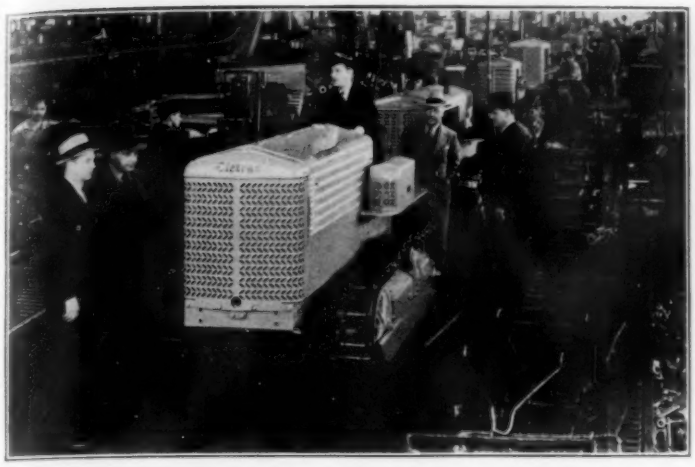
As a result, adequate street lighting no longer merely implies *more light.* It is now appreciated that the street lighting system must be designed to make the light more effective from the standpoint of driver visibility. More light *directed* to the street surface at a lower angle of reflection . . . surface illumination that is equally effective under all street conditions, wet and dry, light and dark . . . an ultimate effect that will produce a lighted background for every object between the driver's eyes and the road . . . these are some of the basic requirements of a street lighting system designed to meet modern conditions.

It will pay you, therefore, before making any plans or any investment to get complete details of this new street lighting technique, and the type of equipment and installation recommended.

Westinghouse offers you an advisory service that will acquaint you thoroughly with all details. We urge you to take advantage of this service by writing, Westinghouse Electric & Mfg. Co., Lighting Division, Edgewater Park, Cleveland, Ohio.

WHEN YOU THINK OF *Lighting* THINK OF

Westinghouse



THE 1000TH STREAMLINED CLETRAC COMING OFF THE ASSEMBLY LINE

1000th Streamlined Cletrac Produced

The packed assembly line shown in the accompanying illustration gives some idea of the acceptance of the new streamlined Cletracs recently announced by The Cleveland Tractor Co., Cleveland, Ohio. On this assembly line Cletrac employs the same method of continuous or mass production as the large automobile plants. Cletrac reports that it is the only line of its kind in a tractor plant.

The photograph shows the 1000th streamlined model, a 61-hp Model DD, being driven off the line by H. J. Leisenheimer, Vice-President, while E. R. Fulwider, Factory Superintendent, W. Abildgaard, General Sales Manager, G. D. Jones, Agricultural Engineer, and W. E. Miles, Sales Manager, look on.

Protecting Concrete Pipe Used in Sewers

In the larger-sized interceptors and outfall sanitary sewers, where the sewage is several hours old and consequently septic, severe bacteriological action usually exists, this action being accentuated in warmer climates. Where oxidation of the resulting H_2S gas is possible as it is above the flow line, there is produced a weak acid that is destructive to concrete through chemical attack on the lime in the cement. Where oxidation is impossible, as in pressure sewers where the pipe is running full and in outfalls below the flow line, there is no effect on the concrete, since no acid can be formed. Also in small, lateral sewers where the sewage is fresh and no harmful bacteriological action occurs, there is no effect on concrete.

Recognizing the need, in large sewers, of an acid-resistant pipe with the strength of reinforced concrete pipe, the American Concrete and Steel Pipe Co., Los Angeles, Calif., has developed a protective lining that is acid-proof and meets other important requirements such as ability to stick to the pipe. Research began in 1927 and has continued ever since. This new coat, called Amercoat, is a solution composed of various inert chemical compounds that are extremely cohesive and adhesive and are repellant to liquids. This solution mixed with a proper fine grading of silica and fine sand is placed in the pipe centrifugally, in a layer approximately ⅛-inch or more in thickness.

An adequate bond to the concrete pipe is an important factor in this protective lining. Because of the extreme density of the concrete in a centrifugal pipe, the bond proved to be a difficult problem. A chemical solution was, however, finally developed which met the double requirement of actual penetration into the concrete, and adhering inseparably to the lining. Amercoat forms a smooth, uniform lining with a hard durable surface and when aged two weeks has the added advantage that it is somewhat plastic so that, when struck with a hammer, it is slightly dented rather than shattered.

Amercoat is reported to be impervious to and entirely resistant to the various acids, in concentrations far greater than are encountered in sewer or industrial conditions. Exposures for over a year to 10 per cent nitric, hydrochloric, hydrofluoric acids, 5 per cent caustic soda, gasoline, oil, grease, soap, alcohol, fruit juices, and the like, have resulted in no effect on or penetration of the Amercoat lining. Experiments have also shown that this lining is impervious to H_2S gas and is not affected by temperatures up to 250 degrees F.

Tests under sewer conditions are interesting. Amercoat-lined pipe samples were hung in the Centinela Avenue manhole at the lower end of the Los Angeles city outfall sewer for one year and four months. The gas and acid conditions in this manhole, because of the extreme length of the sewer, about 55 miles, are the most destructive available. Dense samples of concrete exposed in the manhole are seriously softened and disintegrated within a few months. The Amercoat lining, after the year and four months exposure, is in unaffected condition. An 18-inch Amercoat-lined centrifugal pipe section was placed in the Hyperion screening plant for six months where the sewage ran through the pipe partially full. In this extremely septic sewage, the lining shows no effect from either the sewage or the acid condensing on the inner wall of the lining in the arch of the pipe above the flow line.

Amercoat may also be applied by a trowel or by air to the surface of concrete structures, in sewage-treatment plants, manholes, or other concrete structures exposed to corrosive liquids. Various experiments have demonstrated that it can be applied to such concrete structures when either new or old to form a tight bond and a smooth, hard surface. This is done by thoroughly cleaning the surface, then applying the prime coat, which is followed by placing the Amercoat mixture with a trowel or by air in two coats to total ⅛-inch or more in thickness.

New Manufacturer of Hydrants and Valves

The Oberg Engineering Corporation, Rockland, Mass., has recently opened its factory in that city for the manufacture of water-works materials, comprising gate-valves, sluice-gates, flap-valves, plug-valves, shear-gates, fire hydrants, floor stands, hydraulic hoists and brass goods.

Frederick G. Oberg, President of the Corporation, has been Chief Engineer of the Coffin Valve Co., Boston, Mass., manufacturers of the largest valves and sluice-gates, for a period of 20 years. He has served in like capacity with the Chapman Valve Co., Springfield, Mass., and the Cambridge Machine and Tool Co., Cambridge, Mass. In addition to Mr. Oberg, the officers of the corporation are James B. Studley, Treasurer, and Dr. S. W. Baker, Vice-President and Secretary.

Aeroil Service Broadened, New Traffic Equipment Division

The Aeroil Burner Co., Park Avenue at 13th Street, West New York, N. J., manufacturers of asphalt heating equipment for contractors and highway departments, has recently added a Traffic Equipment Division. This Division, managed by Pierre W. Giannini, formerly of the Traffic Equipment Corporation, will sell reflective devices, signs, stanchions, signals, traffic-line paint, flashing signals, and the well known Reflectostrip.

New District Sales Mgr. for M & H Valve Co.

C. B. Cruger, 1216 North Euclid Avenue, Indianapolis, Ind., has been appointed District Sales Manager for M & H Valve and Fittings Co., Anniston, Ala., for the states of Ohio, Indiana and West Virginia. Mr. Cruger was formerly connected with the Darling Valve Manufacturing Co.

American Water Works Association
Annual Convention
Buffalo, N. Y., June 7-11, 1937

CANDID CAMERA SHOTS

OF TWO STREETS IN TWO MODERN AMERICAN CITIES

Do Your City Streets Look Like This—

Unretouched

or Do They Look Like This?—

Unretouched

Light Your Streets—Effectively and Economically with HOLOPHANE Refractors

Holophane Refractors **SAVE IN MAINTENANCE** because they resist breakage; replacement costs as well as stocking expenses are reduced . . . **SAVE IN LABOR** because they take less effort to service . . . **SAVE IN EFFICIENCY** because they direct the light to the areas where it is needed, permitting wider spacing, fewer units and lower costs . . . **SAVE IN PROPERTY AND LIVES** because adequate lighting means safer streets and saner traffic, reducing the danger of night-time accidents. *SATISFY* YOUR CITIZENS! *SPECIFY* HOLOPHANE REFRACTORS! Our engineering department will gladly place all the facts before you. Write for data! IT COSTS *LESS* TO GET *MORE* LIGHT WITH HOLOPHANE.

ILLUMINATION — Consult Holophane Engineering Service — SINCE 1898

HOLOPHANE COMPANY, INC.

Lighting Authorities Since 1898

342 MADISON AVE. **NEW YORK, N. Y.**

Outdoor Lighting

A Section of THE AMERICAN CITY
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

The City of Beacon Lights with 250-CP Lamps for $2 Per Capita

Higher Rate Paid for 94 Lamps on Underground Feed to Get Better Street Appearance—Bright Lights Mean a Town Ahead, and the Driver Reduces Speed

By IRVING J. JUSTUS
Mayor, Beacon, N. Y.

THE street-lighting system of the city of Beacon, N. Y., serves: (1) the main business section; (2) the traffic arteries outside the business section; (3) residential areas. It is a series system with incandescent lamps. The commercial district, comprising one street about a mile long, is lighted by 600-candlepower single lights arranged on opposite ornamental poles spaced 120 feet apart. As the street is only 35 feet from curb to curb, this provides a high grade of lighting for a street that would otherwise be extremely unsafe at night owing to the many blind intersections. This system was installed in 1929, using heavy-duty metal distribution poles supplied by the Union Metal Manufacturing Co. The poles were designed to carry the ornamental bracket street-lighting luminaires and the overhead wires feeding them, the trolley wires (later removed), and the low-voltage electric supply system serving merchants along the street.

On the main traffic arteries outside the commercial section, all lighting units are of 250- or 400-cp, of three types: the single-light rippled globes on ornamental poles, served from underground cables in the better residential areas; ornamental brackets on close-spaced wood poles in clear-run sections where drivers tend to drive faster; and globe-enclosed 250-cp lamps fed overhead in the less-developed districts leading into the built-up parts of the city. One of the important steps in the improvement of this class of streets occurred in 1927 when 46 underground-fed, ornamental pressed-steel poles were installed. In the remainder of the city, comprising the side residential streets, a minimum size of 100-cp is used.

Before 1935 there were 252 old 32-cp street lights in operation in these areas and on one of the main arteries. By taking advantage of rate revisions worked out with the utility company, complete elimination of these 32-cp bulbs was accomplished in November, 1935, and a year later several of the 100-cp lamps were replaced by 250-cp units. The left-hand photograph of a well-lighted dangerous hillside curve and blind entrance shows what has been accomplished by the latest installation of 250-cp units.

The trend of our improvements in street lighting has been toward larger units rather than more units. The City Council and the Central Hudson Gas & Electric Corporation have at all times been in close contact and have jointly worked out a system that applies the light in the most satisfactory way in each area. Beacon pays a little more per capita for street lighting than some cities. Our night-accident record convinces us that our present rate of $2 per capita per year is a safety investment. The record

for 1936 was as follows: 21 automobile accidents resulting in property damage; 13 accidents in which 15 persons were injured (4 pedestrians and 11 passengers). None of these 34 accidents was caused by faulty street lighting. One reason for our higher per-capita cost is our large mileage of paved streets in proportion to the population. This is a city of individual homes and includes several large institutions and industrial plants. We have 45 miles of lighted paved streets, against a population of 11,933 (in 1930).

50 *Per Cent More Light in Ten Years*

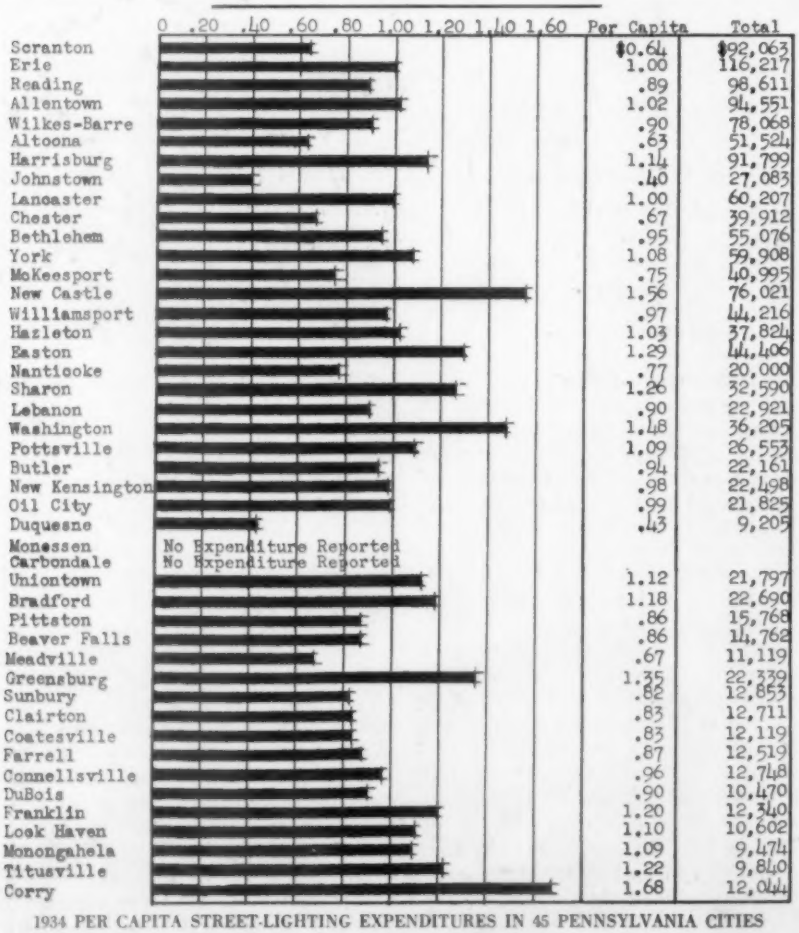
	1926	1930	1936	Per Cent Increase in 10 years
Number of lamps	624	701	729	17
Total cp	107,540	160,226	186,500	73
Average cp per lamp	172	228	256	49

Total candlepower has been increased 73 per cent during the ten-year period, while the average light output per lamp is about 50 per cent greater than in 1926. The actual cost has increased 47 per cent, of which 11 per cent is due to the operation of 94 underground-fed lights, at a rate higher than for the overhead lighting. This extra cost of the underground feed is not fairly chargeable to the greater illumination provided, since the same intensity of lighting could be obtained by overhead supply at the lower figure, but *we want the better appearance provided by the underground installation.*

Our plans for further improvements in street lighting center on the quieter residential streets. Here present lighting consists mainly of 100-cp units at the intersections. Where these intersections are rather far apart, additional units will be installed between corners. Where they are reasonably close, the 100-cp units will be replaced by 250-cp globe-enclosed units.

Bright Light Cuts Speed

One important effect of the larger-sized units recently installed on one main approach to the city is definitely to slow down cars as they cross the city line. Driving in at high speed from an unlighted state road, the driver who finds himself suddenly on a well-lighted highway realizes at once that he is in a community, even though the outskirts are not built up. Accordingly he reduces his speed and approaches the developed part of the city at a slower rate and with his mind alert for traffic conditions. The well-lighted approach at the same time improves the visibility for the driver, thus tending to reduce accidents.

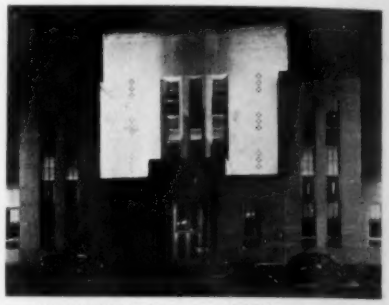


1934 PER CAPITA STREET-LIGHTING EXPENDITURES IN 45 PENNSYLVANIA CITIES

Floodlighted in Colors

THE recently completed municipal building of Hamilton, Ohio, is of white limestone arranged in setbacks varying in height from one to five stories, a combination of material and construction which lends itself admirably to floodlighting. Only the highest wall and the abutting wing and walls on the front and two sides of the building are lighted, against which the other walls are silhouetted. On each side of the building, six 200-watt floodlights at the fourth-floor level illuminate the wall to the parapet in white light.

The center section consists of columns of windows with deep, V-shaped pilasters between them, lighted in different colors. Three 250-watt units are used on each side, amber on one side and green on the other. The color lighting



FLOODLIGHTING OF HIGHEST WALL OF NEW MUNICIPAL BUILDING, HAMILTON, OHIO

is continued on the fluted V-shaped panels above the windows to the parapet by means of four 250-watt floodlights at the fourth floor level. On the front of the building, four 500-watt and two 200-watt floodlights at the second and fourth floor levels produce a similar effect on the pilasters between the deeply recessed windows, and also on the fluted panels extending to the parapet. The colors used are amber and green, as on the sides of the building.

A total of eight 500-watt and thirty-four 200- or 250-watt floodlights are installed, all being the CAG cast-aluminum enclosed type with lenses to suit the particular application. The lighting was designed by the architects' electrical engineer, William Bodenstein, in conjunction with the Westinghouse Lighting Division.

H. E. LIPPMAN,
Westinghouse Electric & Manufacturing Co., Cleveland, Ohio.

Lighting Costs in Pennsylvania

STREET-LIGHTING costs in 1934 ranging from 40 cents per capita in Johnstown (66,993 population) to $1.68 in Corry (7,152 population) are shown graphically by the Pennsylvania Economic Council for all except two Pennsylvania cities of less than 150,000 population. (See chart at left.)

JUNE, 1937

JUN 7 - 1937

The American City

PERIODICAL ROOM
GENERAL LIBRARY
UNIV. OF MICH.

The
Atlantic City the Annual Convention of
Will Be Held This Month